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Childhood Society

FOR THE SCIENTIFIC STUDY OF THE MENTAL AND PHYSICAL CONDITIONS OF CHILDREN.

18321

President:

RT. HON. EARL EGERTON OF TATTON.

TRANSACTIONS, VOL. II.,

PART I.

BEING

THE PROCEEDINGS OF THE SOCIETY FOR THE YEAR 1902.

PRICE HALF-A-CROWN.

Hon. Secretary:

W. J. DURRIE MULFORD.

Offices:

PARKES MUSEUM, MARGARET STREET, LONDON, W,

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Childhood Society

FOR THE SCIENTIFIC STUDY OF THE MENTAL AND PHYSICAL CONDITIONS OF CHILDREN.

OFFICERS, 1903.

President.

RT. HON. EARL EGERTON OF TATTON.

Vice-Presidents.

THE RT. HON. EARL OF STAMFORD.
E. W. BRABROOK, C.B., F.S.A.
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RICHARD BIDDULPH MARTIN, M.P.
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Treasurer.

RICHARD BIDDULPH MARTIN, M.P.

Council.

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G. E. SHUTTLEWORTH, B.A., M.D., M.R.C.S., *Vice-Chairman.*
FLETCHER BEACH, M.B., F.R.C.P., M.R.C.S.
MRS. DICKINSON BERRY, M.D.
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R. P. COCKBURN, M.D., M.R.C.S., L.R.C.P.
R. J. COLLIE, M.D.
M. FRIEDEBERGER, PH.D.
W. HAMILTON HALL, F.S.A.
T. H. JONES (*Delegate from the National Union of Teachers*).
H. R. KENWOOD, M.B., F.C.S., D.P.H.
(*Delegate from The Sanitary Institute*).
J. KERR, M.A., M.D., D.P.H.
A. B. KINGSFORD, M.R.C.S., D.P.H.
R. LANGDON-DOWN, M.A., M.B., M.R.C.P.
W. F. SHEPPARD.
E. WHITE WALLIS, F.S.S.

Hon. Secretary.

W. J. DURRIE MULFORD.

Offices.

PARKES MUSEUM, MARGARET STREET, LONDON, W.
1903.

COMMITTEES.

LECTURE AND PUBLICATION.

Fletcher Beach, M.B., F.R.C.P., M.R.C.S.

R. P. Cockburn, M.D., M.R.C.S., L.R.C.P.

M. Friedeberger, Ph.D.

T. H. Jones.

H. R. Kenwood, M.B., F.C.S., D.P.H.

A. B. Kingsford, M.R.C.S., D.P.H.

R. Langdon-Down, M.A., M.B., M.R.C.P.

J. W. Palmer.

G. E. Shuttleworth, B.A., M.D., M.R.C.S.

E. White Wallis, F.S.S.

Francis Warner, M.D., F.R.C.P., F.R.C.S.

BIBLIOGRAPHY.

M. Friedeberger, Ph.D.

R. Langdon-Down, M.A., M.B., M.R.C.P.

E. White Wallis, F.S.S.

EDUCATION.

E. W. Brabrook, C.B., F.S.A.

F. J. Campbell, LL.D.

W. Hamilton Hall, F.S.A.

J. Kerr, M.A., M.D., D.P.H.

J. W. Palmer.

E. White Wallis, F.S.S.

THE OBJECTS OF THE SOCIETY.

:o:

To promote the study of educational methods and of the environment of children during school life, best suited to ensure the mental and physical development of normal children, as well as of those whose conditions are abnormal, or who are feebly gifted mentally.

To supply information and diffuse knowledge on points connected with the mental and physical status of children, by means of publications, lectures, &c.

To promote the training of teachers specially qualified to deal with such children; and assist by legislation, philanthropic efforts, or otherwise, the provision necessary for them.

REGULATIONS RELATING TO MEMBERS.

:o:

The annual subscription of a member is half-a-guinea.

Members will have the privilege of attending all meetings for the reading of papers, or discussion, and all lectures given for the Society, and of borrowing books from the Library, and will receive copies of such reports as the Council may publish for general distribution.

A member may introduce one friend to the ordinary meetings of the Society.

Teachers of Hygiene and teachers of "Special Classes" are admitted as Associate members, without the privilege of voting at Business Meetings or of receiving the printed Transactions, by payment of an annual subscription of half-a-crown.

Societies, Boards of Guardians, and other public bodies are invited to join the Society as affiliated bodies, and may present to the Council questions arising on the care of children for discussion and report.

Childhood Society

FOR THE SCIENTIFIC STUDY OF THE MENTAL AND PHYSICAL CONDITIONS OF CHILDREN.

REPORT OF THE COUNCIL

FOR 1902.

Read at the Annual Meeting on March 19th, 1903.

In submitting the Sixth Annual Report the Council have to record the continued progress and development of the work of the Society during the year 1902, notably in the issue of the first Volume of Transactions, and the holding of a successful Provincial meeting at Manchester.

The membership has increased to a total of 96, including 14 Hon. Corresponding Members, 61 Members, 21 Associates. During the year 11 Members and 4 Associates were elected.

It is with regret that the decease of the following Members has to be recorded: Dr. J. H. Gladstone, Miss Johanna Hill, and Professor Withers.

Parliamentary.

The Royal Commission on Physical Training, Scotland, afforded the Council an opportunity of presenting some results of the Society's investigations, and these were given in evidence before the Commission by the Chairman of Council, Dr. Francis Warner. The Reports of the Society and a volume of the Transactions were forwarded to the Commission. Evidence was given as to the effect of general physical training in schools in developing healthy growth, and more particularly to the benefit of educative physical training in improving brain power, and in preventing and removing indolence and the signs of nervousness. Statistical evidence from the Society's Reports was given, and special methods of training were explained. Questions were asked by the Commission as to children of various degrees of defect, and as to the care required for the feeble-minded; special attention being directed to the greater frequency of congenital defect

among boys. The methods that were employed in the examination of 100,000 children in schools were explained as a suggestion with regard to the reference to the Commission of the desirability of obtaining a general census of the conditions of children in school attendance.

London University.

The following Memorandum on Instruction in Mental Science adapted to the practice of Education was prepared and submitted for the consideration of the Senate, suggesting that a systematic course of instruction should be provided in "Mental Science for Teachers," based upon Physiology and Natural History as applied to the observation of children and description of the indications of their brain status, including demonstrations given in a practising school, so that students may become acquainted with, and practised in, the methods of studying the child material upon which their professional work is to be employed.

British Association.

At the request of a Special Committee appointed by the British Association to consider the conditions of health essential to carrying out the course of instruction in schools, a representative was appointed to assist in their investigations. A Report was prepared by the Committee and presented to the Association at Belfast, dealing with "Anthropometrical and Physiological Observations," "Knowledge of Hygiene possessed by Teachers," &c.

Minister of Public Health.

The Council having been invited to express an opinion on this subject, it was decided "To approve of the proposal for the appointment of a Minister of Public Health (with Cabinet rank), and the development of the Health Department of the Local Government Board into a separate Ministry."

International Congress on the Welfare and Protection of Children.

Several members of the Council attended this Congress, which was held in London in July, as Delegates from the Society.

Meetings.

During the year there have been held nine meetings of the Council, nine meetings of the Lecture and Publication Committee, and three of the Special Committee on Education.

The Fifth Annual Meeting was held on March 19th, 1902, at 10, Hill Street, Mayfair, by kind permission of the Treasurer, R. Biddulph Martin, M.P., who presided, when an address was delivered by the Rev. T. W. Sharpe, C.B., Vice-President, on "The Influence of the Society in the Removal of the prevailing Ignorance in regard to the true Principles of Education."

The following Officers were elected:—

President.

Rt. Hon. Earl Egerton of Tatton.

Vice-Presidents.

The Rt. Hon. Earl of Stamford.
E. W. Brabrook, C.B., F.S.A.
T. Bridgwater, LL.D., M.B., M.R.C.S.
Richard Biddulph Martin, M.P.
Rev. W. D. Morrison, LL.D.
G. H. Savage, M.D., F.R.C.P., M.R.C.S.
Rev. T. W. Sharpe, C.B.
Francis Warner, M.D., F.R.C.P., F.R.C.S.

Treasurer.

Richard Biddulph Martin, M.P.

During the year two Courses of Lectures were held, and the Council have again to record an increased interest shown in the work done by the Society as indicated by the numbers attending the Lectures and taking part in the discussion.

The success of these Lectures is particularly gratifying, as it promotes a keener interest in the work of the Society, and affords a means of diffusing among Teachers and others a knowledge of the scientific study of childhood, for which purpose the Society was established.

The Members' Evenings, when short papers were read, have produced useful discussions; it is felt that the informal discussions of the difficulties met with by Teachers in dealing with the special classes of children do much to create a more intelligent interest being taken in the care and instruction of the feeble-minded.

The Council desire to record their sincere thanks to the Lecturers, and to the Chairmen who have so kindly assisted them in promoting this department of the Society's work, and to The Sanitary Institute, for the facilities afforded them for the holding of these meetings in its Library and Museum.

The Lectures were as follows:—

ELEVENTH COURSE.

"Colour Sense, and Colour Blindness," by F. W. EDRIDGE-GREEN, M.D., F.R.C.S. *Chairman*, G. UDNY YULE.

"On Inarticulateness of Children," paper by Miss E. E. CONSTANCE JONES;

"On Study of the Mentally Defective Child," paper by Miss F. M. JAMES. *Chairman*, T. H. JONES. Members' Evening.

"On Practical Teaching of Science to Young Children," paper by J. H. GLADSTONE, F.R.S.;

"On Teaching Reading to Individual Children," paper by Miss ALICE MIZEN. *Chairman*, E. WHITE WALLIS, F.S.S. Members' Evening.

"The Lower Limit of Age for School Attendance," by A. NEWSHOLME, M.D., D.P.H., F.R.C.P. *Chairman*, JAMES KERR, M.A., M.D., D.P.H.

TWELFTH COURSE.

"Children's Ears," by Miss M. A. ELLIS. *Chairman*, E. W. BRABROOK, C.B., F.S.A.

"On the Principles and Aims of the State Children's Association," paper by Mrs. MILLS CARVER;

"On Primary Mathematical Teaching," paper by S. DE BRATH. *Chairman*, Rev. W. D. MORRISON, LL.D. Members' Evening.

"Handicraft in Connection with Education," by J. C. HUDSON. *Chairman*, FRANCIS WARNER, M.D., F.R.C.P.

"The Practical Training of the Blind," as carried on at the Royal Normal College for the Blind, Upper Norwood, S.E., by C. F. F. CAMPBELL. *Chairman*, G. E. SHUTTLEWORTH, B.A., M.D. Lantern Lecture.

Provincial Meeting.

With a view of disseminating a knowledge of the work of the Society and of extending its influence, the Council arranged a Provincial Meeting in conjunction with the Congress of The Sanitary Institute in Manchester. The Congress was presided over by the Right Hon. Earl Egerton of Tatton, who in his opening address made a lengthy reference to the investigations and work of the Childhood Society.

The meeting was held in the Ladies' Department, Owens College, on Friday, September 12th, from 10 a.m. to 2 p.m., 120 Ladies and Gentlemen attending.

The meeting opened with an Address by the Chairman, J. Kerr, M.A., M.D., D.P.H., Medical Officer of the School Board for London, and the following papers were read and discussed:—

"The Employment of the Motor Activities in early School Life,' by Miss Alice Ravenhill.

"The Children who are Unfit," by Miss M. Dendy.

"Some Principles of Primary Education," by S. de Brath.

"Vision and Infants' Work," by Dr. J. Kerr.

An Excursion was arranged in the afternoon to The Homes at Sandle Bridge, near Alderley Edge, about 40 attending. These Homes were recently erected by the Lancashire and Cheshire Society for the permanent care of the Feeble-minded. Miss Dendy kindly provided tea.

The local arrangements for the meeting were carried out by C. Christopher Heywood, M.D., of Manchester, who acted as the Hon. Local Secretary.

Demonstrations.

Arrangements for Demonstrations on the Methods of Observing of Children were considered, and a largely attended visit was made to the Royal Normal College and Academy of Music for the Blind, Upper Norwood, where the system of instruction carried out at the College was explained by the Principal Dr. Campbell and Mrs. Campbell, who kindly entertained the members.

Publication Fund.

The Contributions to the Fund, which enabled the Council to publish Volume I. of the Transactions of the Society, amounted to £54 2s.

The Council trust that those who have so kindly assisted to meet the expense of Vol. I. will continue their support to the Fund, and that those members who have not already made contributions may see their way to do so, in order that the publication may be continued.

Transactions.

The Volume marks a distinct advance and development of the active work carried on by the Society, and will, it is hoped, be found especially useful to those members unable to attend the Lectures, and be the means of increasing the roll of membership. Copies of the Volume have been presented to Libraries of kindred Societies.

The Council believe that the Volume has been the means of increasing the interest taken in the objects and work of the Society, and the satisfaction which the publication has given encourages them to proceed with Volume II.

Library.

A number of works on Educational subjects have been added, and in order to make the collection as useful as possible, arrangements are made for members to borrow volumes by applying to the Secretary, and paying cost of postage. Several members have taken advantage of these arrangements, and 59 books have been loaned during the year.

Members are particularly invited to assist in making the Library as complete as possible by presenting books, and by asking the authors of works of interest to the Society to send presentation copies.

Finance.

Although the Balance Sheet shows a balance in hand of £29 5s. 8d., it must be noted that £22 6s. 7d. of this amount belongs to the Publication Fund, leaving only about £7 in hand on the General Account.

FRANCIS WARNER,
Chairman of Council.

W. J. DURRIE MULFORD,
Hon. Secretary.

THE CHILDHOOD SOCIETY.

STATEMENT OF RECEIPTS AND EXPENDITURE

For the Year ended December 31st, 1902.

	£	s.	d.	£	s.	d.
By Balance from last a/c				25	9	8
,, Subscriptions, 1899	0	10	6			
,, ,, 1900	0	13	0			
,, ,, 1901	1	3	6			
,, ,, 1902	29	5	6			
,, ,, 1903 (in advance)	1	3	6	32	16	0
,, Sale of Publications				4	11	11
,, Publication Fund				54	2	0
				£116	19	7

	1901. £	s.	d.	1902. £	s.	d.
To Printing	4	10	6			
,, Honorarium	10	10	0	15	0	6
,, Printing				49	1	3
,, Stationery				6	10	0
,, Postage				9	2	7
,, Attendant, Lecture Room, &c.				2	2	6
,, Assistance				2	2	0
,, Incidental				2	5	1
,, Subscription to Biometrika				1	10	0
				£87	13	11
Balance at Bank	29	1	4			
Cash in hand	0	4	4	29	5	8
				£116	19	7

W. J. DURRIE MULFORD,
Hon. Secretary.

Examined and Approved by
J. W. PALMER AND E. WHITE WALLIS,
14th March, 1903.

List of Donations to the Publication Fund.

Received in addition to List in Volume I.

	£	s.	d.
Mrs. Dickinson Berry, M.D.	0	10	6
E. W. Brabrook, C.B., F.S.A.	0	10	6
S. de Brath...	4	0	0
Miss H. Gavin	0	10	6
Miss T. M. James...	0	2	6
Miss E. E. C. Jones	0	10	6
Miss A. Mizen	0	1	0
C. G. Montefiore	3	0	0
J. W. Palmer	0	10	6
Miss F. B. Poynton	0	2	6
E. White Wallis, F.S.S.	1	1	0
G. Udny Yule	1	1	0

ABSTRACT OF LECTURE ON

COLOUR SENSE AND COLOUR BLINDNESS.

By F. W. EDRIDGE-GREEN, M.D., F.R.C.S.

Delivered February 19th, 1902.

The Lecturer first gave a short account of the nature of the colour sense.

The physical basis of light consists of waves in a substance called the ether, which permeates everything. The waves are similar to those to be seen on the sea, only infinitely smaller, the largest waves producing the sensation of red and the smallest that of violet. The waves gradually diminish in size, from the extreme red to the extreme violet, forming a series in which the members differ from those adjacent to them.

But though there is a physical basis for innumerable colours, the normal sighted person sees only six colours, or at most seven. When light falls upon the eye it liberates a substance called the visual purple, just as heat melts an ointment, and so a photograph is formed, the impression of this photograph being conveyed to the brain through chemically stimulating the cones or terminal organs of the optic nerve. All the evidence which could be obtained shows that there is a special perceptive centre in the brain for conveying to the mind impressions of colour.

This perceptive centre is only able to distinguish six, or at most seven, definite points of difference (colours) in the spectrum. If the perceptive centre be less developed fewer points of difference will be seen—five, four, three, two, or one according to the degree of the defect. This caused colour blindness, which was analogous to tone deafness. There was also another variety of colour blindness in which certain terminal rays of the spectrum, either red or violet, were not seen at all.

The colour sense appears to have developed at a comparatively recent date in the evolution of man. It is probable that primitive

man saw all objects of a uniform colour as in a photograph. When the colour sense was first developed he only distinguished between red and violet, the two colours presenting the greatest physical contrast to each other. As evolution proceeded he saw green, then yellow, then blue, and lastly orange.

The Lecturer gave some illustrations of colour blindness and showed a series of pictures painted by colour-blind persons. He drew attention to the extremely unsatisfactory nature of the tests in present use, as not only were a large number of normal sighted people rejected by them, but three varieties of the dangerously colour blind could escape detection. He exhibited a lantern and other tests which he had constructed for the detection of colour blindness.

ABSTRACT OF PAPER ON

THE STUDY OF THE MENTALLY DEFECTIVE CHILD.

By Miss T. M. JAMES.

(Associate.)

Read February 27th, 1902.

Notwithstanding the legislation of recent years, the education of the feeble-minded is not altogether looked upon with appreciation, many people not acknowledging that this class can be so influenced by education as to repay for the trouble, energy, labour, and care expended. The future will show that the work has justified the sacrifices made in its behalf.

The two sciences that will aid more than any others in studying the child are Physiology, which will teach us how to look for physical signs, and Psychology to assist in the subtleties of mind-working.

We must first decide to which group of defectives the child belongs. Age has nothing to do with it. Probably the child is over-mobile, has no grip, is badly balanced, defective in speech, and knows nothing. This is about the average defective child—the temperament may differ, and we may have the hydrocephalic, the microcephalic, the solitary or the moral defective in place of the nervous one.

A child being nervous, excitable, and intensely fidgety, we place him or her in a class where the majority are of a little calmer temperament. Defective children are exceedingly imitative, and will readily pick up any peculiar habit, much more so than they will learn one that it is desirable to teach them. Such is their contrariety and awkwardness. The child must not become fatigued, and lessons must not be longer than fifteen or twenty minutes. First begins the "sense-training." He is asked to look at something, say a ball. At first he does not attempt to turn his eyes even in the right direction, but presently he makes a sort of haphazard glance that may or may not alight on the ball. This is followed by a look as though he were hunting for it. It is difficult to fix the sight for a moment.

Taste and smell are easily tested, but even these are blunted, and the child does not show much aversion to disagreeable smell or taste. Hearing, like the sight, is difficult to train, the child appearing not to hear when really there is nothing organically wrong. Music is a great stimulus for this defect, and is very helpful with imperfect speech. The defective child loves to sing, although the words cannot be recognised by an outsider. Faulty speech is a great characteristic. The methods adopted in the deaf and dumb schools are most successful for teaching speech, and this is greatly aided by an adapted style of Miss Dale's method of teaching reading.

As a rule, sensitiveness to touch is not very keen or refined, sometimes dull. This is improved by handling articles of degrees of roughness, threading, tying, picking up small buttons and beads, lacing and buttoning, etc. Defective children have to be trained to accuracy by repeated attempts to *exactly* imitate the copy. The judicious teacher will know when to stop before reaching the period of fatigue. Not too much must be expected from the child in one lesson, and above all things the teacher must be careful not to vary her actions from day to day or it will lead to confusion.

The fingers need training. There is no grip: they are limp and nerveless. The most successful training for this defect is physical exercise with apparatus and finger plays. Balance is better taught after the child has been in school a little while, and has become conscious of some acquired power by the exercise of muscles.

Marching and exercising gradually accustom the body to a proper balance, but language can hardly describe the various steps and resources that have to be employed before the child is trained to be even within measurable distance of the normal one.

Defective children often look cross and worried, habitually knit their brows, and are in a chronic state of frowning. Others pout or put out their tongue when noticed, while others hide their face. Some will put their fingers in their mouth, or are always smiling.

By constant reminding and occupation, where curiosity is aroused, which causes the over-acting muscles to relax, the face assumes a more normal expression, but it may not be lasting. The old look reasserts itself, and the only thing we can do is to go on trying.

The playground offers opportunities for study. Here the child is to a certain extent free from school restraint, and will more likely show himself as he is. Play properly supervised and guided becomes a great moral force.

Variety is important, for the defective child readily tires of one

kind of amusement. The important thing is to find out what games the children like best, and to vary and expand them.

To sum up, it is necessary—

To make our work and its results known as widely as possible, and create public feeling so that the defective child may have a chance after leaving the special school.

To bring abundant love and enthusiasm into the work.

To prepare ourselves by practical study of Physiology and Psychology, and to take the greatest pains to make our child-study thorough.

To bear up, persevere, and have confidence, although we must do without the usual reward of seeing apparent and lasting results.

To be careful with classification.

To look for, and avoid, signs of fatigue, which are :—

(*a*) Extra irritability.

(*b*) Extra paleness or flushing.

(*c*) Heavy eyelids and fulness under the eyes.

(*d*) A general disinclination for further effort *specially marked.*

To watch and note the means which will give the most pleasing results in the cultivation and training of the senses.

To do our best to obtain the co-operation of parents, who are willing enough to help, but are ignorant of methods.

To ascertain what defects are congenital and non-congenital, as the former class is much more hopeful than the latter.

To use the playground as a moral force.

To conduct teaching on such wide and scientific lines that child nature will be the basis of all our education, and our "special" schools become the "laboratories of child study."

ABSTRACT OF PAPER ON

THE INARTICULATENESS OF CHILDREN.

By Miss E. E. CONSTANCE JONES

(Girton College, Cambridge).

(Member.)

Read February 27th, 1902.

In giving this title it is intended to express what is sometimes called "the reserve of children," and not any incapacity of uttering words or indistinctness of utterance. Children, although able to speak, are often unable or unwilling to express to others their ideas or feelings. Beginning with quite young children it would seem that often what impresses them very strongly, either in the way of perception, or of thought, or of feeling or emotion, or even dreams, they quite persistently (or at any rate habitually) keep to themselves. Not necessarily from any conscious impulse of secretiveness, but from a combination or variety of other causes, they often do not seem to give any expression in words to what is in their mind.

A lady known to the writer used, when she was very young, to be terrified by the throbbing of her own pulses, and to locate the throbbing outside her own body. She thought the beating went on somewhere (she could not tell where), in her environment; and would listen intently trying to locate it, and growing more and more frightened while the throbbing grew louder. This she never mentioned to anyone, at or near the time when she suffered from it, though she was devoted to, and not the least in awe of her own mother; and also very devoted to a sister. The writer when a child used often to lie awake at night much interested in some curious experiences of sensation. She would feel as if one arm or foot were heavy or light, or extended to a vast size, or shrunk to almost nothing, but never thought of mentioning any of these sensations, either to her mother, of whom she had no fear, or to either of her sisters. Another experience was that of seeing, when lying in bed, a curious kind of moving image—like a formal white-petalled flower, that seemed continually opening out, without

growing any bigger—something like what one sees in a revolving kaleidoscope. In neither of these cases was fear or aversion the cause of concealment. Ruskin in his *Praeterita* gives an extraordinarily vivid and interesting picture of his child-life, from which it seems that in his case the inarticulateness or reserve which must have been at a maximum, was largely explicable by the conditions of his bringing up. He had only his father and mother for companions, rather staid and severe people, and he said that he regarded them rather as great powers of nature, like the Sun and Moon, any disturbance of which he would have felt severely, than as objects of human affection. He lived in a world of his own, into which no confidants were ever invited or admitted.

Causes which operate to make older persons silent concerning their thoughts and feelings, may to some extent operate in the case of children, who like others may be sometimes restrained from telling things through shame or fear, but the reserve or inarticulateness here specially referred to (whether due to *lack of will*, or *lack of power* to express) is much more spontaneous and unreflective.

Other instances of "inarticulateness" might be cited where absolute sympathy seemed to exist between child and parents, together with unusual intelligence and power of analysis in the child.

To a child new to the world fresh experiences occur day by day, difficult to master intellectually and to communicate to others by means of language. Again, children imitate others in articulation and application of words, and imitate their elders by talking about the same things, and not talking about things which the older people do not talk about. Naturally, older people do not generally talk about children's experiences. The thoughts and feelings in a child's mind would be difficult to be expressed, even by a person with exceptional mastery of language, or by a psychologist, a child's fancy being often full of events and objects which perhaps have no name, visual images taking largely the place of words. And a child's mental life is very emotional, and feeling and emotion are difficult to describe. There is very strongly developed in most children something which is not exactly sympathy and not exactly imitativeness, but rather readiness to follow a lead, and a good deal of "bird-wittedness"—readiness to have the attention distracted.

These factors, with the influence of habit or custom, explain a great deal of the failure of children to express their ideas in language, even to those who are in sympathy with them. Again, in a child's mind a nurse, *e.g.*, is associated with getting up, dressing, having

breakfast, going for walks, and so on; an atmosphere of ideas which is likely to put out of the child's head his own thoughts and fancies when the nurse is present. The mother may be inseparably associated with fairy tales, songs, lessons, or reproof. The doctor, teachers, visitors, cook, coachman, are all strongly associated with groups of ideas, which for the time fill the foreground of the child's mind. The same considerations apply to places — church, the drawing-room, the school-room, the dentist's, probably put out of the child's head for the moment any fancies which fill it at other times. All this is different from the love of secrets common to children, but it is perhaps not very easy to investigate, since childish remembrance grows dim through lapse of time, and the intrusion of the cares and interests of grown-up life.

ABSTRACT OF ILLUSTRATIVE CASE.

NOTES ON TEACHING READING TO INDIVIDUAL CHILDREN.

By Miss ALICE MIZEN.

(Associate.)

Read March 13th, 1902.

A speaker at a meeting of the Society having remarked that some people appeared, when reading to themselves, to grasp the sense of a passage by means of sound rather than sight, mutely framing words with the lips, and thereby wasting brain power in the processes necessary to convey the sense of a passage to such readers, and having suggested whether the modern practice of word building might not be partly responsible for the habit he was condemning, the authoress followed the train of thought so started.

From experiment she was inclined to think that where the sense of hearing is not keen the meaning of a passage is apprehended by connecting visual symbols with mental images; that in cases where hearing is keen the *sound* of words assists materially in the understanding and enjoyment of a passage; and that a child with strong tendencies to attribute human passions or emotions to animals and inanimate objects, seizes on the nouns or notional words in a sentence and is apt to neglect the relational ones.

Of five children, the youngest, who was four in May, takes the greatest delight in arranging loose letters to form a sentence, which she infinitely prefers to sounding the words. Still she can give a rational account of a simple picture and repeats little poems, making remarks which shows she understands them.

She resembles her eldest sister in having been backward in talking and on account of this similarity between them the eldest is next mentioned, who now, at the age of eleven and a half, finds French and music two of her most difficult subjects, which fact, coupled with lateness in talking seemed to indicate a want of power to imitate sounds, although she had plenty of ability to imitate actions and connect ideas. She appeared unable to learn by the "Look and Say" or the "Phonic" system, and on nearing five years of age was taught by sentences similar to the "Gouin" method. Sounds do not appeal to her so readily as actions. She now reads whatever she can find and reads in absolute silence, but will dramatize stories

spontaneously and in such a manner as to show that she lives in what she reads.

The little girl next her in age has quite a different character. She spoke earlier and individualized much from babyhood.

Her reading lessons commenced from a picture of a child in a man's arms holding out one hand. She soon learned in this connection to pick out little sentences like "I go up," "So do I," but at each lesson would return to the picture and connect each sentence with the child. At the same time, though she showed marked appreciation of jingle, a thing which her elder sister had never done, when learning poems or verses she would constantly ask "What does that mean"? Nor would she repeat a single line until she had attached a meaning to it. At three-lettered words there came a difficulty. Names of things or qualities she learnt and remembered, but relational words were a perpetual stumbling block, with each word came the question "what is . . ."? For example "cat," "rat," "jam in a pot," "fox," "box," and other words were printed on drawings of the objects and quickly learnt, but when shown in a book "The cat is on a mat" and told the first word was "the," "What is 'the'" was the question. "Is," "this," "that," and other words were all met by the same questions, and for at least three lessons the verb "*can*" in "I can" was presented only to be met by the remark "'*Can*' yes '*water* can.'" She finally learnt to build up words from their parts and when she began to read intelligently, at about five, she read by preference stories of animals. She seems to like reading aloud better than reading silently.

Next come two boys, the first is very quick and inventive, could read a book at four years of age, read from a Standard I. Geography at six; and talked of what he read in a way that proved he understood it.

The younger boy began to learn by the "Phonic" system. He is now nearly six and reads simple stories easily, and two things are noticeable. He always wants to refer to the picture as he proceeds with the story, and likes to verify each detail, making comments as he proceeds. Also he always attacks a new word by finding in it some familiar sound and building on that. As a general conclusion, it seems that no one method of teaching reading will appeal to the intelligence of all children indiscriminately, and that however the subject is taught, if the intellect has not been dulled by unsympathetic treatment, the meaning of what is read will reach the child's mind by the channels prepared for it by the child's idiosyncrasies.

ADDRESS ON

THE INFLUENCE OF THE SOCIETY IN THE REMOVAL OF THE PREVAILING IGNORANCE IN REGARD TO THE TRUE PRINCIPLES OF EDUCATION.

By Rev. T. W. SHARPE, C.B.

(Vice-President.)

Read March 19th, 1902.

I have undertaken to say something about the influence which this and similar societies may exercise in dispelling the ignorance that generally prevails as regards the training of children.

Our object is the study of child nature.

In so large a subject it is difficult to know where to begin; I think I could best attain my end by sketching briefly some of the chief advances that have taken place in fifty years as regards the early training of children, especially in regard to elementary training.

When the second half of the 19th century began, the majority of parents had little idea of anything more to be required than a school building and a teacher equipped with the proper number of text-books. The father dare not open his mouth for fear of showing his own ignorance: the mother was ignorant of all sanitary matters, even of the ventilation of a bedroom; probably she knew how many blankets were needed for the necessary warmth in winter cold, but of the scientific value of fresh air in a bedroom she was lamentably ignorant. As for the teacher, he entrenched himself behind his text-books and doled forth daily the usual tale of words. Whether it were the definitions of Euclid, or the rules of grammar, or the dates of history, all were of equal value and might dispense with explanation.

One of our cleverest statesmen, Lord Sherbrooke, who was for several years placed at the head of popular education as Vice-President of the Education Department, boldly stated that the only difference between the teacher and the taught was that the former

had a crib and the other had none. He openly professed a cynical ignorance of all other methods of education; he was the inventor of the system which for nearly thirty years hung like a pall over English Elementary Education. Again, the training of teachers was confined to the teaching of certain subjects; no idea was formed of the necessity of training our teachers in the knowledge of a child's faculties: training Colleges existed almost entirely for the acquisition of knowledge which they were to impart rather than for the cultivation of the faculties of the individual child.

There was no recognition of the individuality of children, of their likings or dislikings, of their sense perceptions, of their brain development, of the foundation for acquiring valuable knowledge through scientific habit of thought, and least of all of the development of sense perceptions as the foundation of all intellectual progress, and especially of the intellectual powers applied to progress and moral teaching.

Strangely enough this last-named subject has been the last to attract much attention in spite of all the efforts of our kindergarten experts; kindergartens are still but a small group in the great army of schools, though happily some of the principles of Froebel are beginning to find their way into the lower classes of all schools. Now all this might have been dispersed long ago, but for the absurd fetish worship of the book. Pope said of the teachers of his day 200 years ago: "Placed at the door of knowledge, youth to guide, we never suffer it to ope too wide; we keep them in the pale of words till death." Only within the last century has the black fog of teaching through the ear alone begun to roll away from our scheme of teaching; the hearing was divorced from its great pioneer, the eyesight. This false system arose in great measure from the fatal mistake, that the sole or chief aim of education so far as knowledge was concerned was the mere acquisition of a good stock of seasoned information. It is only of recent years that the true aim of education has become known; it is not the passive reception of such information as the teacher chooses to give, but the scientific habit of acquiring knowledge for ourselves.

You see at once how necessary it is to study the individualities of the members of a class. You all know what a hold a modern language soon acquires upon a well-trained ear. What a power fairy tales have upon the imagination of some children and the heroes of history upon others, but in no subject is greater variety of liking and limit of capacity shown than in the study of mathematics.

I would go a step further and say that in all subjects of instruction there is a limit for every degree of capacity beyond which the student cannot pass. This is especially true in arithmetic, which in this particular strongly resembles a game of chess: both require the same concentration of thought, the same power of combination, and the same self-control. But at some point one or more of these powers become exhausted, and when we say the scholar has become "stale" we use the wrong phrase; they are not stale from over-teaching, they have reached the utmost limit that their capacities can compass.

When we consider their capacities and their limitations we see at once what a field of observation, what a plea there is for individual liberty in the mouth of this society which undertakes the duty of the observation of children. We all know what hindrances there are to the individual training of our scholars in the overgrown size of the classes and the repressive discipline which extinguishes spontaneous thought and questioning. But perhaps the greatest ignorance is shown in the disregard of the early training of the senses. A large majority of persons do not yet feel that clear and firmly seen sense perceptions are necessary to all true intellectual progress, and if so the highest moral progress, when the intellect is concerned with moral questions. I would not be misunderstood to say that intellectual and moral questions rest only on sense perceptions. I would rather say that where the senses are imperfectly developed, intellectual conceptions must be blurred and moral conceptions imperfectly formed. Consider some of the drawbacks under which we all labour in this respect. Has it ever been your lot to see blind children brought into school, at the age of 14 or 15, rendered blind by accident or by some rapidly developed defect of part of the machinery of that most wonderful instrument, human eyesight. It is most painful to watch their entire helplessness, all the more because it is aggravated by the imperfect development of the other senses; the hearing indistinct because it is unassisted by the face and look of the speaker, the sense of touch hardly at all developed. Or to see a deaf child first brought to school: the first process in blowing a feather away from its mouth because it had never been taught to emit breath except for the slight effort necessary to support the breathing. Or take a London boy and compare the distances at which town and country boys can accurately calculate the position of distant objects: the London boy comes far below his country fellow because his vision has been always limited by the length of a narrow

street, whereas town and country girls differ very little, their lives being mostly confined to the small room of a tenement or cottage.

How many persons present can use the left hand as well as the right? Yet in a single week I have known more than one person disabled in the right hand learn to write a well-formed hand with the left—a dangerous art to acquire. I am told that it is much easier to commit forgery with the left hand than the right, which should baffle an expert in handwriting. How many people have for years used only one eye for the purpose of seeing, till being suddenly blinded by a blow in the useful eye awakes them to a sense of their defect?

But if you need a convincing proof of the individual cultivation of the senses, observe the eagerness with which a dull or feeble-minded child flies to some manual work. It is Nature's own guidance telling them they are defective in supply of material for intellectual consciousness, and partly no doubt desire for giving rest to the nerves by action. Dull or feeble-minded children used to be thrown aside even in cultivated expert Germany twenty years ago. We have it in evidence that if a scholar for two years failed to keep up fairly with boys of his own age, he was exempt from school attendance as being incapable of profiting by the ordinary teaching, which was after all chiefly book-learning. There will always be a large field of usefulness for private schools so long as the present unscientific classification of our public schools treats with contemptuous pity the less gifted scholar and dismisses him after two or three years of unskilful treatment. The head master should never have undertaken his charge if he had no intention of studying in some degree his special difficulties, and the more nervous child must take refuge in the quiet of a smaller school to escape the constant excitement of the noisy, restless public school.

But of course there are many (1½ per cent. certainly, probably 2 per cent. of our child population) who form a race apart and must remain apart all their lives. I mean the feeble-minded children, as distinct from the dull and the neurotic. These must remain apart all their lives, in the sense that they must be always under some control. Even their best friends seem to be losing hope, and to feel that all such children, if friendless, must be throughout their lives inmates of homes, or if possessed of friends must not be left out of sight.

Much has been done through special institutions to secure a proper course of training: happily the pleasure of working in unison with

others counterbalances the desire for inaction, which all timid incapable creatures feel, and so class-teaching becomes possible. Handwork is one of the greatest instruments of their education; till lately we have neglected the intellectual stimulus which manual work evokes. Handwork is not mere work of the hand, but of the head also, for the full-witted scholar; how much more for the half-witted who can barely deal with generalisations, to whom abstract ideas are a sealed book, who live by example rather than precept, who cannot dive below the surface of things. The surest way of creating an interest in all their work is to give the idea embodied in the work, *i.e.*, to impress upon them the model to which they are to attain; in drawing to let them model the simple natural object, or feel what they are to draw; in carpentry to count the sides and corners of the simple box before they begin to saw or plane and so on.

Before I conclude let me point out some items of the great amount of research that still remains to be done. Progress has undoubtedly been made of later years in a knowledge of diseases of the brain; and it is true that very great progress has been made in the knowledge of the nervous affections of children. A great amount of information has been collected as to the external signs which accompany nervous affections in young children; in the application of their knowledge to treatment of the many varieties of such affections, it can hardly be expected that the affectionate and dutiful teachers of nervous scholars can display the expert skill which is only gained by long observation.

In knowledge of imperfect sight considerable progress has been made; frontal headaches at once arouse suspicion, and in our large towns relief may be at once obtained: but as to the training of the eye to judgment of distances in a company of riflemen only a very few are found capable of judging distances, and we know no artificial means of enlarging the capacity of the eye to secure a better judgment.

Or again, the treatment of the voice in deaf mutes, there are some sounds which have baffled the ingenuity of our best teachers to convey with any exactness to their pupils.

Or with our cripples who are now gathered by loving hands into bright little homes: these homes are to many of these little children only the ante-chamber of death: we know very little of what passes through their thoughts until they have formed a habit of confidential conversation; but we can safely leave them to the hands of the women who make it their life's aim to alleviate pain—to encourage

cheerfulness. In all directions of working for the alleviation of human suffering, the deaf mute, the blind, the cripple, the feeble-minded and others, are now the objects of women's generous care.

I may perhaps be pardoned if I make a brief reference to the founder of the Society, which has been appropriately named the Childhood Society for the Scientific Study of the Mental and Physical Condition of Children. Sir Douglas Galton's main benevolent purpose was the recognition and care of those many thousand chlldren who need special training to enable them to undertake the duties of life, and to keep them from pauperism or crime. The Act of Parliament enabling educational authorities to make provision for such children is the result of a report of a Departmental Committee over which I had the honour to preside; but I can truthfully say that no such action would have been possible without the previous knowledge obtained by the labours of the late Sir Douglas Galton, and of some whom I see around me to-day. I should like also to pay a tribute of gratitude and respect to Boards of Guardians and the School Board for London, who have shown so much alacrity in assisting the good work. In helping to administer the Act through the first year of its operations, I had much reason for admiring the wisdom of the founders of the movement and the generous zeal of those who were called to its practical fulfilment.

EDUCATION OF BLIND CHILDREN.

Note of Visit to the Royal Normal College for the Blind, Upper Norwood.

By E. W. BRABROOK, C.B., F.S.A.

(Vice-President.)

On 24th May, 1902, the members of the Childhood Society visited the Royal Normal College and Academy of Music for the Blind, Westow Street, Upper Norwood, at the invitation of Dr. F. J. Campbell, the Principal, and Mrs. Campbell, the Honorary Lady Superintendent. A numerous party attended, among whom we were glad to observe many teachers. After passing through the type-writing and pianoforte-tuning classes, they were conducted to the Armitage Gymnasium, named after Dr. T. R. Armitage, a generous benefactor to the blind, who was one of the founders of the College in 1872. This gymnasium is exceedingly well equipped, with apparatus for developing the physical faculties of the students, and its results were shown in the excellent physique they displayed. At the Principal's residence, "Windermere," the Kindergarten and Slöjd classes were held, and it was interesting to observe the readiness and surety of hand possessed by the little blind children in these exercises. In the "Walmer" building, classes in reading and geography were conducted by blind teachers, and both teachers and scholars evinced great knowledge and intelligence; as also in the "Grosvenor" building, where arithmetic and writing lessons were given, and an object lesson taught. In the entrance hall sewing classes were held. In the Gardner Hall, built in memory of the late Mr. Gardner, M.P., who endowed the blind with a number of scholarships, several of which are held in the school, is a fine organ. Here a lesson in music was given to the younger children, and several pieces were sung by the older pupils. The visitors were then conducted to the parade ground, where the children were occupied in free movements; to the Fawcett gymnasium, named after the Right Hon. Henry Fawcett, where roller skating was being performed; across the Fawcett Green and Westminster Walk, where the children's

gardens are laid out, each with its own little patch, to which they devote great attention, and where a rocking-boat, Rob-Roy canoe, and rope-skipping were being enjoyed by many. In the Armitage swimming bath, swimming and life-saving exercises were given under the direction of Mr. Guy M. Campbell, Vice-Principal of the College, and several of the feats elicited loud applause from the visitors, who, after inspecting the racing and outdoor games in the lower grounds, were entertained at tea by Dr. and Mrs. Campbell, to whom a hearty vote of thanks was returned on the proposition of Dr. Shuttleworth, seconded by Mr. Brabrook, both of whom expressed a high opinion of the efficiency of the methods pursued in the School and the happy results obtained. Dr. Campbell responded in an interesting speech.

ABSTRACT OF PAPER ON

CHILDREN WHO ARE UNFIT.

By Miss M. DENDY.

Read at Manchester Provincial Meeting, September 12th, 1902.

To begin with a very obvious class of these children: What are we to do with the mentally defective juvenile criminal? J. R. is found trying to wreck a train. He does not appear, at first sight, to be at all different from a thousand and one other bad boys, and he is committed and duly despatched to what is supposed to be a suitable school. But in the school observation shows that he is not a mentally normal child. Perhaps he will prove to have an appetite for strange foods, such as cockroaches and spiders, pins and buttons, and will combine with this unholy taste other eccentricities, some harmless and some dangerous. In many ways he will prove an improper companion for ordinary children, and the managers of the reformatory will discharge him as mentally unfit. So he comes again upon the streets, to be again convicted and committed. It is impossible to certify him as an idiot or imbecile; he is just a poor, muddle-headed little chap, quite unable to take care of himself, and taken care of by the law only at intervals; obeying any evil impulse, whether from his own nature, or from some one stronger than himself whose interest it is to make use of him, he struggles up to manhood and most probably becomes the father of a family.

Then we come to children who, even if they were mentally sound, would, because of improper guardianship, be sent to industrial schools. A little girl is in attendance at a special school whose home conditions are so bad that, were she a normal child, she would at once be sent to an industrial school. But the industrial school authorities are more and more careful that no "unfit" children find their way into their care.

It is true that we have a boarding school for mentally defective girls, but as it is not certified as an industrial school we cannot send the child there without her parents' consent. As it is they fulfil their legal obligations, so far as her education is concerned, by

sending her to the special school. She cannot be certified as an idiot, and after school life is over there is nothing before her but the streets, the lying-in ward of the workhouse, and the gaol.

For the mentally defective epileptics there is no asylum. Institutions for epileptics will not admit them because of their mental trouble. Idiot asylums, with one exception, refuse them because of their epilepsy. There are many idiot children whose epilepsy gives no serious trouble, who are excluded from idiot asylums. They are the source of most wearing trouble at home; there is no alternative but the workhouse, and workhouses which have proper accommodation for epileptic and imbecile children are few. Frequently such children are placed with adult epileptics. Training in such circumstances is impossible—deterioration sure and rapid. Children whose mental defect is great and epilepsy slight are, however, themselves less to be pitied than those whose mental defect is slight and epilepsy severe. Generally speaking, slight mental trouble, unless it take the form of excessive self-conceit, causes much more suffering to the patient than idiocy or imbecility. Its victims have a painful consciousness that they are not quite like other people. A poor lad of this type comes for a time to a special school. He is a gentle, loveable boy when he is not about to have an attack, but before the fits he is morose and almost vicious. The fits are of extreme violence, and it proves impossible to allow him to remain in school, so he goes back to his cottage-home and the streets. His parents can do nothing except send him to the workhouse, and if they do that the father, even should he pay for the maintenance of his son, will become a pauper and be disfranchised.

The recent action of the various idiot asylums, in altering their title to training schools for the feeble-minded, and in their endeavouring to exclude idiots and imbeciles from their benefits, has very greatly complicated the whole question of dealing with the mentally unfit. The rule by which, with very few exceptions, they detain patients for a time only (from four to seven years) was an unfortunate one when they dealt with idiots and imbeciles. It becomes nothing less than a calamity when applied to those who are merely weak in intellect. The idiot is always visibly an idiot. In the case of the feeble-minded, it is possible to gloss over the trouble. True, it is only for a time. The improvement is due to a superimposed habit. The patient is not really strengthened in his own will-power; on the contrary, he had learned to be, more than ever, obedient to the will of other people, and as soon as the guiding influence which

has sustained him is removed, he begins to deteriorate. But, in the meantime, he has appeared to be more or less like other people, more or less able to take upon himself the responsibilities of life, with what results may be imagined. The experience of those who have hopefully sent girls out to service after seeing them behave well in training houses is that the only safety is in permanent care. If the idiot asylums are indeed to be turned into training schools for the weak-minded, we must hope that they may become permanent schools, in which the inmates may be rendered, as far as possible, self-supporting and, at any rate, harmless. All these "unfit" are so only because they are in improper surroundings. They are unfit for the duties and responsibilities of an every-day existence. Placed in proper circumstances, guarded from evil influences, given suitable work to do, they might pass through life harmless and happy and, to a certain extent, useful. Even among defective epileptics there are not many who could not work a little, under supervision.

There is need of state-supported reformatories and industrial schools, with special departments for the weak-minded, and, following naturally upon these, industrial colonies to which the latter may be transferred when they cease to be children.

Then there is need of training-schools in which children of respectable persons can be placed at a charge which brings the accommodation within reach of a working man. These also might work in connection with the industrial colonies.

Idiot asylums, if they are to become training-schools for the weak-minded, should be converted into permanent industrial schools, in which the utmost possible advantage may be taken of the admirable teaching given to their inmates. Of course, fresh idiot asylums are required for the more difficult cases. Lastly, and most pressingly of all, homes are needed for defective epileptics. Is there no wealthy man or woman who will provide these most terribly needed charities?

ABSTRACT OF PAPER ON

THE EMPLOYMENT OF THE MOTOR ACTIVITIES IN EARLY SCHOOL LIFE.

By Miss ALICE RAVENHILL.

(Associate.)

Read at Manchester Provincial Meeting, September 12th, 1902.

The educational and social conditions which obtain in the United States of America have permitted, indeed have favoured, the testing of new theories by school practice to a degree so far almost impossible in our own country.

In an experimental school, known as the "Heusinger School," to which Dr. Edward Shaw, of the Department of Pedagogics at the University of New York, has devoted much time and attention for many years, the guiding principle is that which was advanced in 1797 by Johann Heinrich Gottlieb Heusinger (Docent in Philosophy and Pedagogy at the University of Jena), viz., that "the impulse for occupation is the strongest and most insuppressible of all the impulses of the child and man." In more than one article Dr. Shaw has turned the light of scientific observation on this subject, showing its practical value in school method, and the following résumé of his views briefly indicates the physiological and psychological observations upon which they were based.

The physical movements of a young child are principally of two kinds, both involuntary and distinguishable from one another by the way in which they are initiated. The first class, which may be described as Impulsive, includes those which arise from some cause solely *within* the child. Contractive movements made with the arms, kicking movements, twistings and contortions of the body, are for the most part of this kind, and are initiated by the discharge of nervous force from the lower centres of the brain. By these impulsive movements, a large part of the nervous mechanism of an infant (which at this period is relatively simple in its structure, as com-

pared with the nervous mechanism of the fully-developed adult) is brought into action, or made to function in a normal manner. The second class, or Reflex movements, are those which arise primarily from external stimulus *outside* the child, through some of the avenues of sense. For instance, when a bright light is brought into the room where a young infant is lying, his head is turned towards it because of the stimulus falling upon the nerves of the retina. This illustration could be multiplied by many others of equal familiarity, such as the act of sucking, or the contraction of the legs if the feet are tickled. "Such is the nature of the nervous mechanism that its extension and complexity of growth are aided by these same involuntary muscular movements, upon which voluntary movements are subsequently based. A little later on a third class, the Instinctive movements, are initiated; these are more complex; they *enter into consciousness;* there is a purpose in them, though the child does not know the end to be attained at the moment of performance. Out of these three classes of involuntary movements spring up motor ideas. The pleasure or pain necessarily accompanying them gives rise in consciousness to a desire to repeat or to inhibit them." By their means the child comes gradually to represent to himself some end to be attained or avoided, for which reason Professor Shaw considers it warrantable to assert that the will develops first through the motor side. In virtue of all these movements the brain cells undergo modifications of development, and take on a deeper complexity of structure; this development in complexity is accompanied by the shooting out of more nerve filaments or connections; or, as some neurologists hold, the opening up of connecting fibres, which are there at birth, but not developed. Flechsig says that in the fully matured child at birth the brain centres of sight, of hearing, of touch, of taste, and of smell are separate in their activities the one from the other. They are for the time being so many seats of consciousness. "As the child grows and the nervous mechanism develops these centres begin to push out nerve filaments towards each other, or to develop the fibres and filaments already there, and also to connect themselves with the lower regions of the brain and with the spinal marrow. In the fully developed brain all the centres of sense are connected, and the result is a unity of action between them; these centres of sense are connected with the lower centres; and later certain others become developed, whose office seems to be to control these lower centres. The gradual acquirement of this control comes very slowly

and is one of the immediate ends to be attained in education." Flechsig has called those parts of the brain into which these centres push out nerve filaments the *association* regions; other writers describe them as pathways of association; and by others they are designated dynamic pathways by which energy is more readily distributed to every group. "Unless there were physical activity, sensation and impression could not be conveyed to the brain, and the progressive modification of the cells which compose the centres, and the shooting out of the filamentary nerve connection, or the development of the nascent connections would not progress." It thus becomes obvious that the very processes of nature compel physical activity in the early stages of the child's development; it is due to an underlying necessity of the child's nature. Professor Baldwin strongly emphasises this law of sensory motor association; *i.e.*, that every mental state is a complex of sensory and motor elements; and any influence which strengthens the one tends to strengthen the other also. Physical activity, then, is necessary for the development, for the health, and for the unity of the nervous mechanism. Unused motor energy also produces a vast amount of often inexplicable fatigue.

It appears that there is a constant discharge of motor energy into the main channels of the motor system in order to produce movement, so that the nervous mechanism may be developed thereby, and the resultant activity is inevitable and needs direction. If we can but employ these activities so as to make them a contributing part to or an accompaniment in the child's lesson, we are enabled thereby to hold the child's attention; but, on the other hand, if we do not employ them, this energy must still be expended in movement, but this unlicensed expenditure incidentally withdraws his attention from what we have in hand for him, leads to misunderstandings, friction, and apparent insubordination, while it also means the loss of a valuable form of assistance. Dr. Shaw specially emphasises that it is orderly, educative activity in school hours, not license, for which he pleads; activity directed, controlled, made to help powerfully in securing that equipment of knowledge for which schools are established. Time he finds to be economised, and a broader mental development to be the outcome, when trouble is taken to provide some motor accompaniment for every task; a method which promotes the growth and development of the nervous mechanism, and arouses a coincident and most desirable feeling of pleasurable interest, an emotional condition which materially strengthens memory and association.

The following are a few examples of Dr. Shaw's methods as employed at the Heusinger school, though obviously inadequate fully to do them justice; they are expressed to a large extent in his own words, noted during my visit in the spring of 1901. For instance, when teaching reading to young children, the lesson will last but a few minutes and perhaps five words only are taken as its subject. The letters are printed on pieces of card-board about two-and-a-half inches square, and are placed in the shallow trough of the blackboard in the order demanded by the words. The pupils make a vigorous striking gesture with the right hand as they point to each letter: when all have thus been emphasised by sound and motion, another gesture is made at the moment the whole word is pronounced; this time a sweep of the hands from left to right, as though to blend all the letter sounds into one whole. These actions are repeated individually in connection with each word. Sometimes the teacher will upset the letters forming a word, or simple sentence, and call upon a child to pick up and rearrange them in correct order, or he will shuffle the cards and give them to be replaced in accurate sequence. Still further variety is provided for older children; *e.g.*, when a pupil has read a sentence, he goes to the blackboard and writes it; then returns to the table and selects either printed or written letters as directed, these he arranges on a tablet into the sentence, and takes it to the teacher for approval. Thus, much orderly exercise is combined with an ordinary reading lesson.

Arithmetic is a subject which presents large opportunities for the employment of the motor activities in its teaching. Ingenious use of blackboard and pointers wielded by the children is made in the Heusinger School. Paper and cardboard admit of tridimensional constructions in great variety, and by the folding and cutting of paper all necessary space forms of two dimensions are easily made. Both blackboard and floor are brought into much greater requisition for the drawing of plans and diagrams than is usual. Scales and weights, measures of capacity, and other concrete objects are constantly employed; buying, measuring and selling each find a place. Such procedure renders the instruction in arithmetic less formal and more informing, and excites a greater degree of interest in the children. Very similar methods are followed in connection with geometry; the pupils are continually busy with their hands as they bring into requisition ruler, compasses, pencil and pen. The hands and eyes work in harmonious conjunction, and thus important motor

elements become constituent parts of the notions and judgments acquired. An increased power of perception, and consequently greater stimulation is a proved result; especially is this evident in the judgments formed of the relations of lines, angles, surfaces, planes, solids and areas, which are multiplied in a remarkable degree.

Writing is at first taught entirely on the blackboard. In the first year the practice is carried on chiefly as free-arm bi-manual exercises. The children start with forming the non-loop letters any size they please. Some make them four or five inches in height, others again make their letters too small. The former are gradually led to reduce the size, a process which closely follows the development of power to co-ordinate the muscles involved in the movements, the latter are encouraged to increase the size of their letters in order to acquire natural muscular co-ordination and freedom of form. Desk work begins only in the second year, when a large crayon is used on strips of paper six inches wide and three or four feet long. Dr. Shaw strongly advocates the use of this crayon, known as the Wax School Crayon, because as the transition from the blackboard to the desk is in itself difficult, he desires to relieve the child from the additional difficulties which result from the friction of pen or pencil on paper, and the fixation of the eyes upon the small point of a lead pencil or pen. With these wax crayons friction is reduced to a minimum, and the unfavourable effect of a small point is removed. Dr. Shaw's observations of the usual position assumed by a child learning to write led him to investigate the physiological conditions which give rise to the drawing of the left hand to the side, the dropping of the head and bending of the spine to the left in a posture entirely harmful. His conclusions may be briefly stated as follows: nervous energy is liberated equally from both sides of the brain; that flowing from the right side finds normal outlet in the movement of the right hand when forming the letters; that from the left side being repressed results in the opposite condition from activity—tension and contraction—a result visible in the child's attitude and productive of mental fatigue in addition to being physically injurious. To obviate this necessitates some device for giving active employment to this left hand. To this end the long strips of printing paper are utilised; the paper is very cheap, has no gloss, but a slightly rough surface. As the child writes a word, still in letters at least two inches high, it becomes necessary to move the paper along, in order that his writing may be directly in front of him; the employment of the left hand for this simple purpose is found to completely obviate the

symptoms of tension and constraint above enumerated. In the third year the child is provided with squares of paper, ten inches by twelve, and a Blaisdell pencil filled with wax instead of graphite; thus gradually smaller letters and the use of an ordinary pen are introduced. This method of teaching generally results in a natural and satisfactory power of muscular power of co-ordination, freedom and ease in movement, as a result of which rapidity in writing a good hand is easily and healthfully acquired.

In a branch of study where the employment of the motor side may be thought almost impossible, *i.e.*, in the teaching of modern foreign languages, it will be conceded that the principal factor is manifold association; and this is the hinge upon which such instruction is made to turn. For instance, when teaching German to a class of seven or eight-year-old children, I watched the teacher take a tumbler, put it on the table, pour water into it, add some white powder, stir, taste, and so forth; describing each action in simple words; each process with its accompaniment of description being severally imitated by each child in turn; at the conclusion of the little scene the teacher wrote what had passed very legibly on the blackboard, at the dictation of the class. At the next lesson the children repeated what happened on the previous occasion, only this time the actions were expressed in the past tense and again written on the blackboard. A third repetition took another form: each child unaided by his companions going through the entire series of actions. If either failed to remember them accurately the appliances were at hand to strengthen the association and aid the memory. The children do not write any foreign words themselves for the first two years of learning a modern language; their eyes are first trained to accuracy by seeing the teacher put down the words correctly at each lesson. At first these lessons last only for a quarter of an hour, during which time it is rarely difficult to hold a child's full attention; colloquial command of a language becomes a matter of comparative ease, and the familiarity acquired with daily interests and occupations leads to the spontaneous employment of French and German during recess by the children. Naturally, the lessons assume a somewhat different character as they progress, but throughout they are adapted to the development of the children. For example, the construction of a card model of a five-barred gate constituted the "activity" of a class in German of twelve-year-old pupils; this involved much accurate measuring, the use of special tools and materials, and the employment of technical terms. In both instances there was abundant evidence of the demands made

on thought and reflection; and experience has shown that by their judicious use a substantial knowledge of the language is obtained by creating a firm chain of associations before text-books are resorted to at all; while later on grammar loses its dreariness when immediate, concrete application of rules forms part of the course of study.

The bright intelligence, excellent physical appearance, and evident resourceful self-reliance of the children in this school, spoke forcibly in favour of the methods enforced, though these were recognised as still to a large degree tentative by the man who has devoted many years and most of his means to their development and practical working.

NOTE.—I regret to state that the invaluable work carried on by Dr. Edward Shaw in the cause of Education was cut short by his sudden and premature death in February, 1903.—A. R.

PAPER ON

SOME PRINCIPLES OF PRIMARY EDUCATION.

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(Member.)

Read at Manchester Provincial Meeting, September 12th, 1902.

We are all, perhaps painfully, familiar with the words Primary Schools and Primary Education. We are all aware that a Bill concerning Secondary Education has recently passed the House of Commons. But in the course of my school work I am continually brought face to face with the fact that very few persons indeed distinguish with any certainty between primary and secondary instruction.

The education of a man who in latter life will have directing and teaching functions to perform, falls naturally into four periods. These periods are:—

Under 7 years,	Home teaching and Kindergarten where there are almost no set lessons.
7 years to 12 years,	Primary (or preparatory) school.
12 years to 18 years,	Secondary school, or "Public" school.
18 years to 22 years,	University.

Now, the primary stage of instruction is chiefly concerned with the development of faculties and powers. It is quite incidentally that it can be said to be concerned with acquiring knowledge.

Nor is this distinction a fanciful or a verbal one, as I hope to show. I see many children who have been taught with the view of instilling certain knowledges, but very few with the view of developing their native powers, of arousing an intelligent interest in the chief and obvious facts of the surrounding world, or of accustoming them to use their eyes to observe, their hands to make, or their minds to pay attention.

This is common in children of parents in all ranks of life, but especially in the children of our own class. The reason for this is

not far to seek. It is that the so-called primary training departs very materially from the primary type and does not satisfy the needs of the age at which it is given. There is only one way to develop function—exercise—and if we give children the completed results of other people's mentation to "learn", we may indeed be giving them knowledge, but we are not helping them to acquire faculty. This can only be done by accustoming them daily to go through the process of observing facts, drawing inferences and applying conclusions.

But "Education" means vastly more than mere instruction, and in England this has generally been kept in mind, though we are perhaps now not quite sufficiently mindful of it.

We shall all, I think, admit that the purpose of education is to make the human creature healthy, intelligent, and duty-loving. Carefully analysed, these words will be found to cover the whole ground of physical, mental, and moral culture as applicable to each specific case. I am not going to trouble my audience with German theories—for though the German psychological classification is very helpful to the intelligent schoolmaster, these matters are technical matters with which the general public has no more to do than with the technical classifications of medical science.

But, however much we may admire German results and the surprising success of German methods in turning out men thoroughly instructed for commercial and professional life, however much we recognise that education is one process whose early stages are inseparable from the later if the complete result is to be attained, we must admit that it is neither possible nor desirable to transplant German systems to English soil.

It is not possible—because the German parent—and strange to say, even to some extent the German boy—has the cult of knowledge. He very willingly learns, he is easily instructed, he is content to work eight hours a day and to have even his games regulated into gymnastics. His special virtue is the gospel of "plodding." His ideal seems to be fulfilled by a perfect drill.

It is not desirable, because the English ideal is that of free development in good surroundings, with no more compulsion than is in the nature of things unavoidable; and we have in the games and corporate life of the public school a factor whose value in character-building is fully recognised in Germany. I believe, men interested in education all over the country are gradually evolving, slowly and tentatively but surely, a thoroughly English type of education which will utilise the German discoveries—so far as these are

genuine scientific discoveries—of the laws of mental action and as such applicable to all normal minds, and will add sound methods of instruction to the public school spirit. I hope to-day to place in juxtaposition three of the principles which belong to the education of normal children up to twelve years old. I believe that the recognition of these principles would clear up much of the confusion between Primary and Secondary Education, and I know that while generally admitted in words they are very little acted upon, not only in the schools where the children of the working classes are instructed, but in our nurseries and preparatory schools; and I wish to speak with special reference to the children of the "directing classes."

The purpose of education is, I repeat, to make the human creature healthy, intelligent, and duty loving.

HEALTH.—In the primary (and by far the most important) stage, the chief instrument to these ends is, not instruction, but HABIT. Habits of body and habits of mind are the basis of health. We are all more or less under the impression that if we *tell* children often enough what they ought to do they will do it. This is simply not so; telling is mostly wasted patience. We need to form habits, by custom, from the very first; and in the young child nothing is easier to do. Some years ago I visited one of Dr. Barnardo's homes and carefully observed the children there, all under eight years old. The Lady Superintendent pointed out to me some infants whose anæmic and scrofulous appearance bore out her statement that the heredity of the children was about as bad as it could be short of specific disease. She said that the older children were, on the average and at the start, no better than the infants; yet, with very few exceptions, they all looked very rosy and healthy. Why? Because of perfectly sound and simple milky food, regular hours, continual fresh air, and long hours of sleep. These conditions do not obtain in many of our own nurseries.

It is my lot not infrequently to see boys who, not originally defective, are trained into defect and delicacy, usually by their mothers. Shelter from the wind and the sun under the name of protection from chill; from healthy exercise under the name of over fatigue; from self-reliance under the plea of danger; these conditions, and twenty-two or twenty-three hours out of the twenty-four spent indoors in place of in free air and abundant light, create "delicacy"—that over sensibility to slight changes in surroundings—those morbid alternations of excitement and listlessness which are

too often called "a highly strung temperament." Irregular hours and frequent eating of rich sweets like chocolate creams produce stomach derangements, set up irregularity in the digestive process, and the child becomes more "unaccountably delicate" day by day for want of simple food, open-air life, regular occupation of mind and body suited to the age, and wholesome discipline.

If I am asked what regular occupation is suited for babies of three to six, I reply: The genuine Kindergarten, where nothing whatever is *taught*, but children "grow by doing" according to Froebel's wise sequences, where they get accustomed to use mind and hand, to play sociable games, and to take interest in the things about them. I do not mean that travesty of the Kindergarten which is merely a day nursery where an ignorant girl teaches children to cut out coloured paper.

All this is the special province of the mother. Provided that she knows what a truly healthy child should be, and has mental balance not to be blinded by maternal affection, she can very easily accustom her child to enjoy its bath, to take pride in being clean, to face small dangers, to rely on its own courage and skill, to adventure, to trust, to love, to be interested in the things it sees, to apprehend the meaning of the words "*I ought*," and day by day to grow stronger, more intelligent, more happy, more able. Friend as I am to the higher education of women I confess it moves my most profound amazement to see English girls passing examinations in formal mathematics and Latin grammar, and neglecting the knowledge which would enable them some day to be artists in flesh and blood and produce noble types of men and women, as if this knowledge were of no account, or would come to them of itself. Whatever may be true of a simple and more or less primitive community, this knowledge does not come of itself amid the many pitfalls of our complex civilisation. I sincerely trust that the time is not far distant when, instead of seeking academic distinctions for the most part entirely barren, English women will consider it necessary to understand the laws under which a child grows into health, sanity, and pleasure. It is not, however, a mere matter of leaving academic distinctions on one side and keeping to ordinary housekeeping and shopping which will enable a woman to understand even the first principle which governs a child's life and growth. The knowledge of this principle is not to be gained by a mind unaccustomed to consider cause and effect.

The principle may be roughly defined as the cycle of nutrition,

exercise, and rest, repeated day by day and week by week. To make this habitual is to fix the habits of perfect digestion, to renew muscular and nervous waste, and to make regular healthy function persistent, and to modify heredity by the use which is second nature. This is the very first principle of primary education. Its applications, purposes, and details, its manifold bearings on mind and body (for it is as true of the mind as of the body) is a matter which every possible mother should know.

If I lay so much stress on this, it is because there are scattered up and down the land a large and I fear an increasing number of children (of wealthy parents), whose nervous instability is such, that "duty" has ceased to have a meaning for them. This nervous instability is the natural consequence of weak indulgence and haphazard-treatment in the nursery.

INTELLIGENCE:—

Instruction is not education, though the two words are too often used as synonyms. Nevertheless the imparting of knowledge as an outfit for life will continue to be so important a part of it, and so many conditions of health and well-being must be complied with before it can be imparted, that it is not surprising that the two words should so frequently be interchanged. Knowledge transmitted from generation to generation and increased in each is the effective distinction between savage and civilised man. The larger the number of persons in each nation who participate in this, the higher that nation stands. But the knowledge must be real, not accreted; that is, it must be the continual healthy function of the mind, the habit of healthy mental process, not mere remembered information. Secondhand knowledge is so helpless in presence of some new turn in events as to be scarcely worth calling knowledge at all. And all our knowledge which is worth a button is that which acts and reacts through the outward circumstances of our daily lives, which is practical and real and ministers to effectiveness, or to recreation of worn down powers.

All knowledge has indisputably begun in objects of the senses. The need of tools and weapons gave rise to the processes whereby copper, bronze, iron, and steel can be worked. Men did not chance to discover iron and say—Go to now, let us reason upon the physical, chemical, and magnetic properties of this metal. These knowledges grew by the handling of it. The most abstract of all sciences, that of mathematics, grew in the same way. Not long

since, there came to light a papyrus of the Rhind collection, which appears to be some of the occult knowledge of the Egyptian priests. It is a collection of empirical rules for drawing, making and finding the area of triangles, squares, circles, pyramids, cubes, and other geometrical figures for the purposes of building and land measurement. Here we have the origin of geometry—in concrete things, and the beginning of its abstraction into a science.

When the Homeric bards wrote of the wrath of Achilles, and the fall of Troy, and the wandering of Ulysses, the much-enduring, it was because they were moved by the heroisms, the passions, the deeds, and the words of their ancestors. All knowledge and all art begins in the concrete, with sense impressions, with interest in real things—it is in its second stage abstracted into science, mathematics, and literature.

Generalisations are reached through particulars and in no other way. The finished results of mentation are not to be loaded up as disconnected ideas. Knowledge is function of the mind, and a child needs to be accustomed to this function, and not to be presented with results to save him the trouble of thinking; and here again we must have simple material well within the child's comprehension, and must form the HABIT of working on this material—must be accustomed to observe, to combine, to describe, and to express. And this process of mental digestion must be slow, regular, habitual. The analogy is obvious. This brings us to the second principle which I have to emphasise.

Teaching has two stages: the Primary, in which we work from the concrete sense perceptions towards abstractions, dealing with numbers, not with arithmetic, with vocabulary, not with grammar, with stories, not with connected history; and the Secondary or Formal Stage, where these particulars are gathered together and studied as abstract mathematics, language, history.* Each age demands its appropriate treatment; and "primary" and "secondary" are, in fact,

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* It is not meant that the Primary and Secondary Stages are separated by any hard and fast line between concrete and abstract teaching, but that in the early stages of instruction material for the senses to work on is imperatively necessary, but becomes progressively less so as the mind is filled with experiences. To a certain extent contact with objective reality is always needed—the physician or engineer learns most in the dissecting-room, the laboratory, or the workshop. Healthy mental action is to learn the rule from particulars, to apply the rule to fresh particulars—being, in fact, a cycle of reaction between concrete and abstract.

two stages of instruction, not only in time but in matter and method —the former dealing almost entirely with particulars at first hand, and the latter dealing largely with generalizations mapped out in advance.

To illustrate: Primary instruction in mathematics means that in place of giving a boy rules to learn, we should accustom him to measure and compute for himself. We should begin with numbers below 10, which are within the comprehension of every boy of eight years old. He can already deal with these—the numerical faculty is in his mind already, it is not put there by the schoolmaster. We should then lead him by HABIT to deal with larger numbers, and to discover his rules for himself. The mathematician is formed by the habit of dealing with numbers, quantities, and magnitudes, which he can understand, realize, and be interested in.

Primary instruction in geography is that which enables a boy to realize the directions, distances, and heights of landmarks in his own surroundings, to read a map intelligently, to make his own plans and sketches. However rudely done at first, these are better than memorizing and copying.

In language the true Primary instruction is the correlation of word and thing. Show the child any object, at first the simpler the better. Let him describe its colour, shape, and size, its uses, what it is made from, and how. A common water-jug or a coal-scuttle will serve the turn. We may progress afterwards to pictures or narratives of events, account of places seen, and the like, but we should always keep to experiences of the boy himself till he is at least twelve years old.

Sound Primary instruction in foreign languages grows out of the same principle. Not the grammar rule, and then the sentence on "the grey parrot of my brother-in-law"; but first the sentence expressing familiar and visible things or actions. The child already knows enough grammar for his own purposes; lead him by use to increase it and to perceive in due time the need for the rule. Vocabulary before grammar is primary instruction. Grammatical rules are secondary instruction, and the grammatical method is suited to the older mind, but not to the younger.

Similarly with history: First the lives of some of the men who made England, in simple but ample detail. Show the arms, houses, forts, clothing, utensils, ornaments, and tombs of the time. Give original material—a few of its songs, folk-tales, and chronicles. Interest the child in the persons. This cannot be done by chrono-

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logical text-book narratives out of which all human interest has been desiccated. Then in due time he will be interested in history.

Now it is the general custom to ignore the first stage almost entirely. Setting aside the Kindergarten, still so little utilised or understood, where Froebel carried this principle into action, it is usual to begin by teaching a child certain little black marks which we call letters and figures. Tears and pain and grief begin at once, not so much from the entirely necessary discipline which obliges us all to face difficulties manfully, but because we are trying to insert foreign matter into the child's mind, and endeavouring to make it function in a non-natural order. Let us make clear by a few instances the opposite principle and the result of its neglect. A colleague of mine offered a short time since prizes in village schools for answers to common-sense questions. "When the wind is west which end of the weather vane shows where it blows from"? "Which is the north side of your village"? and the like. Not five per cent. of the children could even begin to answer these simplest of all geographical questions. When a little boy comes to my school and has had time to wear off the strangeness, it is my custom to put him some questions in concrete numbers. I am often told—"I can do the compound rules, multiplication of money," or what not. "Well," I say, "that is very useful, but let us do something easier"; and I let him count down, say, seventeen pieces on the table slowly and audibly. I sweep away some into my closed hand leaving, say, nine in full view. My readers would be astonished if they could see how few boys can say how many there are in the hand. They ask—"Am I to multiply or subtract?" I write down, say, $\frac{15}{3} = 5$, or $15 \div 3 = 5$, and I show 15 counters in sets of three. The boys of ten and twelve who can say what the 15, the 3 and the 5 stand for are very few indeed. But give them rows of figures to deal with, and tell them just whether the addition, subtraction, multiplication or division handle is to be turned, and they can grind out the result. Some time since I was examining a class of gentlemen's sons on geometry. To the question, "What is a circle"? they served up Euclid's definition quite correctly: "A circle is a plane figure bounded by one line which is called the circumference." "Very good"! Then I held up in turn these three objects—a disc, a ring, and a hole of approximately equal size. "What are these"? "Circles." "Does this agree with Euclid"? "Yes." It was soon apparent that the definition corresponded to no native ideas whatever. It was a mere accretion.

In teaching geography to a class whose average age was fourteen years, in a school whose fees are over one hundred guineas a year, I had occasion to speak of valleys. From the window could be seen the river flowing down from the hills; the head boy was asked, "What do you see?" "The country." "What is the chief thing in it"? "The village." "Anything else"? "The river." "Why does it flow that way"? A long pause, then, "Because God made it so." "Well, yes, certainly in a sense, but why did He not make it flow towards the hills"? Brisk reply, "Because He couldn't"!

Again and again have I verified the fact that our boys scarcely connect the things they are taught with the real outer practical world at all. A boy will do intricate sums about gallons, acres, cubic feet and the like, and not have the remotest idea how many gallons go to his bath, how many acres there are in his cricket field, or how many cubic feet go to a barrow-load, and he looks on the whole thing as unpractical formalism. And he is not far wrong, for much of the knowledge he laboriously acquires under the stimulus of impending examinations is mere foreign matter thrust into his mind, and produces acute mental indigestion. It is the schoolmaster whose method is pedantic. It is quite a common case to find that at the end of that public school education which we extol as the finest in the world, a boy has a permanent distaste for reading anything but the flashiest and trashiest cheap literature, cannot observe or express himself decently on any subject, has no interest whatever outside sports and games, and is all but totally ignorant of the history of his own country and of the very existence of the arts, industries, and sciences which make the civilised world. I venture to assert that this is in great part due to the excessive formalism of our teaching, and to the omission of the Primary Stage of Instruction. No foundation of concrete realities has been laid for the superstruction of abstract knowledge.

The human mind cannot imagine any things whatsoever but by the aid of the things it has experience of. If we call upon the unstocked imagination of a child to deal with square feet, cubic yards, gallons, acres, ounces, tons, and the like, without its ever seeing these things, we are forming the habit of barren memorising. If we teach a boy about capes, bays, isthmuses, continents, latitude and longitude, and examine him in the height of Chimborazo, the population of Benares, and the products of the West Coast of Africa, we are training him in unpracticality and confirming the idea that knowledge is memorised pedantry. If instead of the glorious

human story of the poets and artists and orators who made Greece, the warriors and statesmen who made Rome, the explorers, the sailors and the heroes who made Britain, we give a chronological skeleton and call it History we are fixing for life the unintelligent habit of looking on the world of living causes as if it were a *hortus siccus* of dry-as-dust classifications. The result is painfully familiar in nice healthy, manly boys, who have had £200 a year spent on their training for seven years and cannot write an ordinary letter in their own tongue, or ask for a railway ticket in any other, and do not care for any kind of knowledge.

What then is the remedy?

Supply the needs of the primary stage. Establish the cycle of nutrition, exercise, and rest, from birth to twelve years of age. As soon as the mind opens supply it with suitable material to work on, not with completed results of other people's mentation to be memorised. Let the children's minds "grow by doing"—let them be in contact with actualities, let them, as far as possible, *do* things instead of learning *about* them.

It is not, I repeat, that our teaching is all wrong. The teaching of the upper forms in our schools is good; we do not—in spite of all that has been said to the contrary—play too many games. We may think of them and talk of them too much, but we do not play more than healthy bodily development would dictate. But our children of eight are put to the same kind of tasks and to the same matter as boys and girls of fourteen. They slowly grow into the age at which they can fit themselves to the method, they form the habit of memorising in place of the habit of complete healthy mental function, and they harden into inability to learn and understand, they can only memorise and repeat. It has been said that we English make a cult of ignorance—that we are a stupid people. What! The race that alone of all others can successfully colonize—that has drawn India out of warring chaos, and Egypt out of bankruptcy and tyranny—the race that directs, on the whole successfully, a seventh of the habitable globe—a stupid race! That we "live to make blunders and die to retrieve them" is too true. "If the iron be blunt and we do not whet the edge then must we put forth more strength; but wisdom is profitable to direct," and many have been our blunders in Ireland, in India and Africa, for which we have paid the price in blood and treasure—but we are not stupid.

But especially in our directing classes have we to lament the want of science, method, foresight, and planned application of means to

ends. And we must lament with Ascham the number of good brains spoiled by bad schoolmasters, who have made all science and method into pedantry, and disgusted young minds by mere formalism and separation between the classroom and actual life. Now at the beginning of a new era of interest in national education we must grasp firmly this first principle of primary instruction: that particulars precede generalizations.

How is this principle to be carried out in primary education so that the average child (and not only the exceptionally intelligent and observant) may reach the secondary stage of instruction prepared to profit by it?

I will take three instances from the ordinary matter of primary instruction in our preparatory schools. Arithmetic should begin not by learning "rules" but by training the sense of number, and so evolving the rule in the child's own mind. The only possible operations are to split large groups into small ones, and combine small groups into large ones. (Analysis and Synthesis.) Accustom the child to do this naturally and to recognise the symbols which stand for the acts, so that every arithmetical rule stands to him for a concrete reality. It is best to keep all these operations exceedingly simple, working for weeks with numbers below ten till the processes are entirely familiar and habitual. Then proceed to numbers below one hundred and work at these for three months or more, then to numbers below one thousand. A year of this work results in complete ability to handle numbers intelligently. The "four rules" are known implicitly and by experience. The principle has been systematized in the book I have here (J. Wulfson's Visual Arithmetic. G. Philip & Son, Ltd., 1s.), and is used with surprisingly successful results in the Austrian State Schools. When this power of dealing readily with number has been acquired we can pass to the measuring of length, area, solidity, and weight, all in turn. Actual measuring and weighing must in every case precede lessons about these things. Let the child use the foot rule, metre rod, and scales, do many simple concrete problems and discover the rules for measurement before he begins those in which the same quantities are imagined and written down on paper; let him feel and compare weights by his muscular sense; let him guess, and verify his guesses at dimensions and quantities. Keep the class always in contact with the concrete, and work from the concrete operation to the "rule" which expresses it, and then back from the rule to the operation, never forgetting that the signs written down are not the arithmetical

operation, but only the symbol for it. Space does not admit of my pursuing to its end a course of primary arithmetic; enough has been said to illustrate the principle. I place in an appendix the actual mathematical routine.

French may be taken as the type of modern languages. The purpose in view is twofold—the utilitarian—to enable us to travel in France and do business with Frenchmen; and the cultural, to enable us to enter into modes of thought and expression which have played, and will continue to play, a great part in European development. To attain this knowledge of the language there are two methods, one suited to youths, the other to children; one secondary, the other primary. The former takes the grammar, learns the structure of the language and puts it together synthetically, learning the vocabulary through the grammar. The other associates the word and the visible or pictured thing and learns the grammar through the vocabulary and the sentence. This latter is the method of sound primary instruction and applies our principle. The other may be the method of sound secondary teaching, but is the method usually adopted in primary classes, whence it comes about that boys learn French at our schools for seven years and cannot ask for a glass of water.

We have of late had a surfeit of methods—the Gouin method, the Swan method, the Berlitz method, the Riemann method, &c., &c. I have no wish to detract from any of these excellent teachers, but I do wish to point out that they are essentially the same. I do not want you to think I am advocating some new patent process warranted to be better than any other. All this is foolish petty jealousy—the methods in question reduce themselves in the main to the more or less intelligent and effective application of one principle—that sound language teaching in its primary stage teaches the grammar through the right use of sentences on familiar things and not vice versa by learning grammar rules and then making sentences based on these rules anent "my brother-in-law's green book" or "my sister's uncle's blue umbrella."

What is required in the primary stage of history teaching is so unlike the common practice that one hesitates in such necessarily brief outline to suggest so great an innovation. But varied endeavours have convinced me that here a new departure is unavoidable. Information, more or less accurate, according to the degree of culture of the teacher or the kind of books used is usually given. Now this information may or may not be interesting according as it is presented in a dry or a lively way, but in either case it is information about

people of whom the child has absolutely no kind of knowledge. Children do not care to know that the Romans conquered the British Celts because they know nothing about what kind of people the Romans were or what kind of people their operations were directed against. They may memorise the date of Caesar's invasion and may even work up a temporary interest in whatever dramatic incidents the compiler may not have ruthlessly expunged from the text book narrative, but they do not care about the information for exactly the same reason that you and I are indifferent to the operations of the Venezuelan insurgents—of whose quarrel with their government we are ignorant. Children, like adults, do not feel interest in conflicts unless they know something of the persons or the principles at issue.

How then, I shall be asked, are children to be interested, how make them know Celt, Roman, and Norseman if not by telling of their deeds?

By supplying what we all really want to know about people: (1) What they look like; (2) What they can do; (3) What they like: (4) What they think right and wrong. Nothing is easier than to introduce to children in this way Celt, Roman, and Norseman—the three great types who have made European history. When a child, by means of pictures, story, and song, is familiar with the houses, pottery, arms, statuary, clothing, food, recreations, ceremonies, modes of living, and hopes in dying of any people he will feel he knows them, but nothing short of this will give him this sense of knowledge. He will then listen and assimilate with interest information about the parts they played when he arrives at the age for secondary education and breasts the full stream of history.

Conscientiousness.—There is yet a third principle on which I should like to say a few words, and they must be very few, partly because the limits I had set myself are already exceeded, partly because the principle in question is essentially religious.

I am afraid there is reason to think that the idea of duty is somewhat weakening among English boys. A distinguished house-master in one of our great public schools confirms me in this. I observe that instead of being anxious to take their places in their father's business, to join their regiments, or to begin in one way or another their work in the world, they wish to remain as long as possible at school, making no serious efforts, and are finally pushed into some career by sheer compulsion of circumstances.

I do not know how far this may be so in the more strenuous North, but in the South it is common to see lads of eighteen and

even twenty staying on at school playing games, without a thought of the part they mean to play in the world. When reminded of duties in life they express a preference for some career which will give "good screw and no fag"—*fag* meaning any effort to do work thoroughly. Whether this is due to excessive comfort, too entire devotion to sports and games, that religion is too often taught in schools as a matter of belief and innocence of conduct—the way a boy does his duty being left out as as a quite secondary, or, indeed, a secular matter—I do not know. But I am sure that in the Primary stage of a boy's religious instruction much can be done to strengthen the idea of duty.

Primary physical and mental education appeals to the primary perceptions of the body and the mind, and trains them to fuller growth by exercise and habit. So, likewise, primary religious education appeals to the primary instincts of the soul to love and to duty. I have taught in a Sunday-school and heard with regret the glib Catechism answers, behind which there is no vestige of an idea. "What do you really *mean* by the 'works of the devil?'" Blank looks from the whole class, and no answers. Up goes one little hand, that of the clockmaker's son. "Please, sir, his inside." I could parallel this little chestnut by a score of others. Inside the school there is no religious question. For babies there is no religion other than the feeling of love, the feeling of duty, and the feeling of the ever-present and all-seeing God. These are the primary religious emotions, and if we ourselves have them we need not fear anthropomorphism, under whatever forms these ideas are given. With them all formularies are alive, without them all are dead.

The idea of the Fatherhood of God gives a meaning to Duty in the humblest or the youngest life. What then should be done? Give original material: the biographies of the Bible, with as much illustrative matter as possible—pictures and reproductions of Oriental scenery—true illustrations by great artists, not the vamped up artificial rubbish which invests one and the same figure with impossible blue and red robes and a halo like a dinner plate, and calls it S. Peter if it has a key, and S. Paul if it has a sword, but genuine studies of Oriental life and scenery. Handle all the biographies, not after the stained glass fashion, but in a kindly, reverent, human way, permitting all kinds of reflections; handle them with the robust treatment which is not afraid of comment. Let the idea of God's presence and guidance of each life be implicitly rather than explicitly brought home. Children do not demand proof if they see

honest beliefs under whatsoever forms. If a child should demand proof, here is a very simple one. We all grow by adding cell to cell, bone cells, muscle cells, nerve cells, &c., just as plants add some kinds of cells to make flowers and other kinds to make wood, leaves and fruit. Do we pretend to be able to do this of our own knowledge any more than the plant does? Or do we suppose that the wonderful results of form and function and colour are reached without the guiding intelligence in the marshalling of cells which physiological science has begun to know as Chemotaxis? God, I would tell a child, is *everywhere*, giving form and colour and life and growth to all things and all persons. Such ideas will exclude all narrow and paltry notions of the Deity as in a distant Heaven, overlooking the earth from outside it. Nothing seems to be more futile and even ridiculous than to treat the most tremendous spiritual fact that human nature can realise as though there was a kind of merit in accepting it, and as though it could be made quite comprehensible to the most limited intelligence.

Every child can accept the principle of the ever present God who makes the spring come forth and renews the face of the earth, who has been the helper of men in all times, who is his Father because He will likewise love, help, and renew his own little self from day to day. This last principle will grow with the growing mind, and is, I believe, the only one which dares even to promise conscientiousness.

APPENDIX.

A SCHEME OF PRIMARY MATHEMATICS FOR BOYS OF THE DIRECTING CLASSES.

This scheme is based on practical and successful results.

Term I.

Content.	*Method.*
Addition and subtraction of visible groups. Symbols of these.	Count the groups and write down the figures as signs for the realities. Rapid counting by twos, threes, fours, &c.
Addition and subtraction of linear units, inches, feet, yards, centimetres and metres.	Actual measurement and record of lengths and weights; familiarity with these by sight and touch.

Term II.

Content.	*Method.*
Rapid counting of threes, fours, &c., up to twelves.	
Multiplication table as a form of addition.	
Meaning of multiplication as the repetition of an original group.	Exemplified by area—the row of units of area repeated as, say, ten sets of eight each.

Term III.

Physical meaning of division: splitting a group into sets, the divisor being either the number of sets or the number in each set.	Cards are used, or counters, to form the idea. Visible difference of $\frac{12}{3} = 4$ and $\frac{12}{4} = 3$.
Notation of this applied to lengths, areas and masses.	Grouping of counters and written symbols for these; actual measurement of a long length and its division into smaller lengths, number of sets of three inches in a yard measure, &c.

Term IV.

Arithmetic of money.	Actual coins are provided if possible; if not, dummies. The first sums are done with the coins themselves, and the correspondence of symbol and fact brought out.
The physical act of getting change expressed as "borrowing," and the notation of this; how related to multiplication.	
The converse; how related to division.	

Term V.

Tables of weights and measures; application of the "four rules" to these.	Class make their own "tables," as far as possible, by measuring.
	Visible pounds, ounces, grams, kilograms.
Simple problems from common life, involving dealing with abstract areas, masses and weights.	The cwt. as the weight of a sack of coal, the ton as twenty sacks.
Form distinguished from mass.	Visible square and cubic inches, &c.

Term VI.

Arithmetic of capacity—pints, quarts, gallons, cubic inches, and cubic feet. Metric system, unit the cubic centimetre. Decimal notation.	Observation of what is identical in specimens, to form the notion of the cubic volume.
	Practice in measuring cubic contents.

Term VII.

Content.	*Method.*
Decimals: addition of various decimal lengths, areas and volumes.	Actual measurement employed at first, then abstract figures.

Term VIII.

Division of decimals, mostly physical examples on length, weight and pressure.	Deduced from division of the metre rod.
General problems on decimals.	

Term IX.

Factors: H. F. C. and L. C. M. treated also algebraically at the same time.	From concrete examples and daily life; longest patterns repeatable in given sections, largest coin in which given shares can be paid.

Term X.

Fractions arising from division of groups and units. Fractions of lengths, areas, masses and weights. The abstract meaning of a fraction.	Visible fractions of area cut out of squared paper and written down.
	Visible ratios of these.
	The same, using weights of 1-lb. and its fractions perceived by muscular sense.

Term XI.

Fractions as expressive of ratio. Equation of ratios is a proportion—*e.g.*: $\frac{1}{2} = \frac{3}{6}$ *or*, $1 : 2 = 3 : 6$.	As Term X.

Term XII.

Fractions continued. Inter-conversion of fractions and decimals.	Visible series of lengths, areas and solids: 1, 3, 5, 7, &c. 2, 4, 8, 16, &c.
Progressions, treated both arithmetically and algebraically.	

CORRELATION.

Concurrently with this, and reinforcing the ideas from another point of view, the following Geometrical Instruction may be used. The first term's work is to arouse interest and to teach children to see.

Term I.

Content.	*Method.*
Realization of the line as a mere length without appreciable breadth, an edge.	Visible lines and the distinction between curved and crooked lines, in that curved lines follow a rule. Circle, ellipse, parabola (rocket), hyperbola (fern), volute (snail shell), &c. Actual use of ruler and scale to draw straight lines from point to point.

Term II.

Use of the compasses. Some properties of the circle. The square as an area.	Habit of drawing circles, and discovery of two chief properties. Pattern work, using circles and squares.

Term III.

Nature of an angle as the amount of opening between two edges or lines. Principle of the circle used to divide lines and angles.	First cutting out, then drawing squares and triangles. The oblong and other parallelograms deduced from the square and triangles from these.

Term IV.

Notion of equality and measure of angular openings. The right angle divided into halves, quarters, &c. The circle in "degrees."	Deduced from the circle cut by cross lines and split by trial and error.

Term V.

Some properties of parallels deduced from the square and the cube.	Treatment increasingly abstract.

Term VI.

Notion of equality of area arrived at by reasoning without measurement.	Regular figures actually drawn and measured. Measurements by different boys compared. Superiority of reasoning.

TERM VII.

Content.	*Method.*
Further developments of equality of areas and volumes. Area of the square on longest side of right-angled triangle. Approximate area of the circle compared with the square in its radius, &c.	Examples exactly drawn and areas first measured, then weighed and computed, then reasoned out.

TERM VIII.

Notion of tangent lines.	In connection with geography.

TERM IX.

Construction of scales.	Drawing of simple objects to scale.

TERM X.

Notions of ratio. Development of the idea of proportional lengths and proportional areas of triangles and parallelograms.	Mean and fourth proportionals, drawn and reduced to arithmetical and algebraical statement.

TERM XI.

Proportion as applied to areas.	As Term X.

TERM XII.

"Euclid" as revised by Mathematical Committee.

End of Primary Course.

DISCREPANCY BETWEEN THEORY AND PRACTICE.

This is the end of a primary course intended to fit a child by exercise of faculty on concrete things to assimilate the very excellent secondary teaching at our public schools. A boy who has gone through this is entirely fitted for the secondary teaching which is so excellently given in the upper forms of our public schools. If he were never to get more he would still have a fairly complete outfit of real mathematical ideas. But nowhere is there such an appalling divergence between theory and practice as in the school. Having had no primary introduction to realities, it is quite common to find boys, after ten years at a public school of the first rank, entirely

ignorant of any useful mathematics. The task of teachers is a hard one. Some boys come to school at nine, some at twelve; some blankly ignorant and despising all knowledge; some conceitedly stuffed with useless scraps of geography and history and half-remembered arithmetical "rules," but unable to read so as to understand the simplest book, unable to write down anything as a record, unable to count; some are flagrant examples of mismanagement, needing very special training before they can even begin to learn. If all mothers would train their children to be clean, to be obedient, to be attentive, to use their eyes and fingers, to be interested in things about them, and to read, write, and count, and no other formal lessons whatever and would send them to school at eight years, the proportion of successful and well-trained young men might be trebled, over-pressure might be avoided, and a vast deal of trouble, punishment, and friction might be spared.

Education is a unity in which—if there is to be no cramming, no over-pressure, and, in a word, no humbug—each period must receive its own proper nutriment, and proceed in ordered sequence from beginning to end. As it is, parents too often go on saying that a "boy has plenty of time" till he nears twelve years old, till habits of indifference, of inattention, and of memorising the indispensable minimum, have become ingrained. They then become alarmed and expect the school-master to do in two years what ought, and if it is to be done effectively, *must*, be spread over five years. Cramming follows.

We may hope for better things when parents become alive to the fact that it is precisely in the years from seven to fourteen, so frequently considered educationally unimportant, that mental habits are formed. First-rate instruction (which need not be very expensive) is the need, given by men and women who have made the art of teaching a professional study, and know its essential steps. After and through the individual results, and in no other way than by their slow and sure method, will come the wide national results; and if, as is now admitted, the great successes of the twentieth century await that nation which shall best organise its education, so it is certainly true that this organisation will turn not upon grants and parties but upon the use of sound methods adapted to each successive age of the normal child, ensuring the development of the healthy practical understanding which can apply principles to the events of life and make these principles living realities, and creating that DIRECTIVE ABILITY—that knowledge how to apply means to ends—which is the chief factor of individual and national success.

ABSTRACT OF LECTURE ON

HANDICRAFT AND ITS CONNECTION WITH EDUCATION.

By J. C. HUDSON.

Delivered November 13th, 1902.

We have to-day, everywhere, international competition, created and aided by rapid means of communication, making all the world competitors in industrial occupations, and, as a consequence, great attention is being paid everywhere to commercial and industrial education. In view of such phenomena, we naturally ask "Have children vocational aptitudes, and can these be discovered? Can children be fitted by education for almost any calling? Should school education consider these aptitudes, or should it concern itself in any way with the future working life of its children?"

A number of inductive studies have been made in England and America by several qualified observers, and especially by Prof. Earl Barnes, in order, if possible, to ascertain the attitude of the child towards these questions. As a result of these investigations, we are told that the data gathered from studies extending over 2,360 papers, written by girls and boys at school, show that the girls do not appear to have considered the possibilities of future occupation at all, but are drifting along with a blind faith that in some way they will find the right thing to do, and that having found it they will know how to do it. This appears to be true even of girls going through high schools and colleges. If we think of the general character of a girl's education, with its emphasis on the consciousness of sex, we can hardly be surprised to find that their life's work as individuals seems to be marked out for them by the ACCIDENTS of family interests, marriage, and personal influences.

In the case of boys, drawn especially from the poorer classes in a large city, the studies referred to show that these are guided by the occupation that PAYS, and in this they follow the paths marked out clearly by father, uncle or brother. There is no reaching out after self-realization, no feeling of how good it is to do things because

your heart goes out after them, no glory in the joy of making things —only PAY.

There is, however, abundant evidence in both sets of papers that children, after eight or nine years of age, have a tolerably distinct feeling as to the general sort of work in which they would choose to spend their lives.

A remarkable difference in the vocational choice was shown between the children of the same class of society, but living in the COUNTRY, compared with the choice of occupation of those living in the city. Among the former there was evidence of an intelligent understanding of the joy of work, which was conspicuously absent from the other set of papers.

One of the greatest and most pressing facts in modern life has been the abandonment of the country for life in the town. The great majority of people now live in towns, whereas at the beginning of the nineteenth century the larger number of people were found in rural districts. I suppose no one will need to be convinced of the superiority of the surroundings and life in the country from a *health* point of view for boys and girls, from birth on to perhaps fifteen or even eighteen years of age. But this is not all. Country life, environment and occupations give superior educational advantages to the possibilities of a town environment. There are large opportunities in the country for unconscious training and discipline of the eye, the hand and the brain, which can hardly be supplied in any other circumstances whatever.

In the country, natural forces and processes, of absorbing interest to children, are daily visible. Out-of-door life, with its varying kinds of occupation and work, is a very real and beneficial education, awakening and sharpening observation, and developing general practical intelligence, and is the best preparation for dealing with abstract subjects later on.

Such education is impossible for the town-bred child, for what he sees is complex, abstract, and endlessly varied, and in it he has, and can take, little or no actual part except as a portion of a huge machine; *e.g.*, pens, books, clothes, everything is bought ready for use —if anything goes wrong with the water from the tap the plumber is called in—milk comes in a can—father goes to the city to earn money to buy bread, which is sent from the baker's. Contrast the value of such an experience with that of the country boy who watches the horse being harnessed to the cart: then is promoted to *hold* some of the harness; later on helps to harness the horse, and

finally drives it himself to the railway station with the milk. This has been taken from the cows fed on the neighbouring pastures, which he has seen watered by the rains and the streams which flow to the river. He is quite familiar with the processes of ploughing, sowing, growing and ripening of the corn, harvesting aud threshing, grinding at the mill into flour, which is then made into bread and baked in the oven at home. The orderly march of events, the connectedness, the reasons for each process become part of the child's own actual experience, and are so worked into the fibre of nerve and brain as to be really a part of himself. There is nothing in town life which can supply an equivalent for this unconscious education of the individual by large, natural impressed forces. Hence there is ever-increasing need for our present school curriculum to supplement the town environment by adding to it something simple, concrete, and natural to act as a corrective for the loss of the occupation supplied by rural environment. This idea receives additional force when we consider that all advance in civilization has been won by work and by the subjugation of material to human needs.

There is general agreement *now* that all intellectual culture is deeply influenced by the *material*, and that school occupations must not consist of mere routine employment, but should form active centres of scientific insight into natural materials and processes.

Prof. Dewey of Chicago, Prof. Beyer of Leipzic, and other pioneers of modern, yet old conceptions, of education agree in making the work of the school a real preparation for society and civic life. Prof. Beyer declares that it is through these occupations, determined by the child's environment, that the intellectual and emotional interpretation of Nature is developed. It is by what we do in and with the world that we read its meaning and measure its value. For instance, let the matter in hand be the making of a true surface on a piece of wood. The tool employed has a history ranging from flint implements to machine and power tools: the testing of the surface for accuracy and form takes us to the representation of surfaces and methods of producing them in other materials, such as clay and metal; the observation of various kinds of surfaces and their relations to one another lead us to the balance of parts, their symmetry, harmony, &c.

Similarly in such occupations as weaving or modelling, an acquaintance is made with raw materials, their preparation, adaptation to use, processes necessary for working up the material into useful articles from the simplest to the most modern, all in their historic order and

worked out experimentally as far as possible. Children are thus taught to see the necessity and trace the effects of such processes, not only upon that particular industry, but upon modes of social life. It is possible in this way to obtain an ascending ladder of economic progress, which can be studied by connecting it with typical persons and inventions representative of the economic ideal. I refer to such lives as those of Palissy, Arkwright, Smeaton, Brindley, and others. The pupil is thus introduced to the objects of Nature, not merely through the intellect, but actively, and as far as the school and time allows, he is made to pass through some of the experiences of mankind in the working up of natural objects. Thus, by means of individual observation, helped by the vivid imagination natural to the child at this period, he may be led to the realization of the historic development of man, following a path which agrees with the genetic rather than logical order of development.

The modern recognition of the necessity for educating the children of the nation dates from the Protestant Reformation in Europe and the discovery of the New World. These acted as great forces for breaking up the medieval and classical conceptions by sending men back to the realities of life. Then followed the methods of modern inductive science, until to-day we are living in a world when machinery is constantly at hand and where ability to handle tools with an experimental knowledge of physics is absolutely necessary.

These great civilizational movements, themselves independent of any philosophy of education, have all been making for new conceptions of its meaning, and towards the conscious recognition of the inclusion of the nature of the child, as an important factor to be considered by those who undertake to teach him.

With the due recognition of this fact the school may be regarded as a laboratory of applied psychology:—a place for the study of mind as manifested and developed in the child, and for the search after materials and agencies that seem most likely to fulfil and further the conditions of normal growth.

Prof. Dewey of Chicago says, "The equipment of the individual, mental as well as physical, is an inheritance from the race; a capital inherited by the individual from the past and held in trust by him for the future. The idea of evolution has made familiar the notion that mind cannot be regarded as an individual or monopolistic possession, but represents the outworkings of the endeavour and thought of humanity. . . . . Studies of childhood have made it equally apparent that this socially acquired inheritance operates in the individual only under present social stimuli. Nature must

indeed furnish its physical stimuli of light, sound, heat, etc., but the significance attaching to these, the interpretation made of them, depends upon the way in which the society in which the child lives, acts, and re-acts in reference to them. The bare physical stimulus of light is not the entire reality; the interpretation given to it through social activities and thinking confers upon it its wealth of meaning. It is through imitation, suggestion, direct instruction, and even more by indirect unconscious tuition, that the child learns to estimate and treat the bare physical stimuli. It is through the social agencies that he recapitulates in a few short years the progress which it has taken the race slow centuries to work out."

The old conception of instruction disregarded suitability of subject matter, and the necessity of preparedness on the part of the mind to be instructed, was met by bringing the child mind into abrupt and direct relations with various bodies of external fact, labelled geography, arithmetic, grammar, &c. But these classified sets of facts are simply selections from the life of the past, and arose out of social situations and needs no longer existing. It was forgotten that in order that these should become part of the child's conduct and character, and really enter into vitalized relations with himself, they must be assimilated not as mere items of information, but as organic parts of his present needs and aims.

Prof. Wm. James declares that the intellect is but a middle department which we sometimes accept as final, failing to see that it can have but one function, viz., the function of defining the direction which our activity, immediate or remote, shall take.

The old conception was that a boy is a little man, his mind a little mind, in everything but size the same as that of the adult, having its own ready furnished equipment of faculties, memory, judgment, attention, etc. Now we believe the mind to be a growing thing, and therefore a changing thing, presenting different phases of capacity and interest at different periods. The old assumption led to the identification of the adult and the child mind, and all that it was thought necessary to do was to break up the knowledge of the adult into little bits, spread these over a sufficient number of years, and call this education.

Such a method ought to satisfy no one now, for with the idea of the gradual mental growth of childhood the necessity arises of removing the centre of gravity in education from outside the child, from form, symbolism, and ancient subject matter—useless in the modern world—TO THE CHILD HIMSELF, making his own activities and interests the centre, and enable him to learn by and through living.

We are compelled to consider the psychological law, that each period of brain development demands certain appropriate stimuli, and failing to get such at the proper time, or being forced to receive what is unsuitable, may, so far as the individual is concerned, become atrophied for ever.

Not only on account of the working of economic forces and laws, and the demands made by new social conditions, but from the standpoint of evolutionary or genetic psychology, we must take a biological view of education, and if we do this we must transform our methods of approach, and seek to supply such material and such activities as will go to assist brain growth and mental development.

Sir James Crichton-Browne, in a recent address, said "I fancy that the skull has been responsible for a good deal of mischief in the educational sphere. We have perhaps, from the bony case, formed an erroneous popular conception of the organ within. We speak of numb skulls and thick skulls as synonymous with mental defects, and I cannot help thinking that we certainly proceed often in our educational methods as if we did conceive of the brain as a hard, stony, obdurate body that might undergo grinding and cramming and polishing without damage to it. I think our parents, guardians, and teachers would all be more gentle in their manipulations of the brain if they could realize that it is of the consistence of firm jelly, that it is like a sponge, full to the dripping point of blood, that it is made up of a starry firmament of cells, arranged in millions of constellations and of a silvery filagree of fibres beside which the threads of the gossamer are coarse and clumsy cables. I think that parents, guardians, and teachers would sometimes be less exacting than they are in their demand on the brain, less intolerant of its failures if they could picture to themselves its functional activity, now shimmering over its surface from point to point like the Aurora in the northern sky, now almost vanishing in intervals of slumberous ease, now flashing forth in moments of passionate emotion, now glowing with a steady light as in tranquil thought, now gathered into a spark of dazzling brightness as in moments of concentrated attention. Those who think thus of the brain would approach the investigation of its products and the regulation of its machinery with nicety and caution."

How shall we carry these conceptions into effect? The true road to success cannot be discovered all at once. There is no answer in advance to these questions, and reasoning alone will not enable us to discover the answer. It is only by *trying* that we can find out, and by knowing what others *have* done, and *are* doing in the same field. A beginning has been made in many parts of the world, especially and more completely in some parts of America, where the most highly trained minds of the Universities, allied with the best teaching ability that the States can produce, supported by the State education

authorities and assisted by wealth, make all the possibilities of success most favourable for the discovery of a school curriculum and conditions suited to modern social and industrial needs, in harmony with child growth and child nature, and for the attainment of the highest brain capacity and mental, moral, and physical development.

If we examine the direction which these and similar experiments are taking, we find a certain mode of procedure already well marked, and found to answer many of the requirements, so far as the education of children from four to fourteen or fifteen years of age is concerned. Up to three years of age the child has probably been interested and concerned with the daily occupations going on in his home, and these are perhaps the best for the school to begin with—"playing," if you will, at keeping house with groups of other children, passing on from this to the making of play-houses of cardboard or similar material, furnishing these with chairs, tables, etc., made by themselves in conjunction, perhaps, with children a little older, weaving, making light wooden articles to complete the furnishing of play-houses. The work of spring and summer takes the children out of doors into garden and lane and field, to work actively, to study nature and natural forces and processes with eye, hand, and mind all alert. There should also be the care of plants and animals, cooking, setting table, serving and waiting upon each other, washing plates and dishes, etc. Such occupations give opportunities for securing the willing and even eager co-operation of the child by laying hold of his natural instincts and impulses, and utilizing these to carry him to a higher plane of perception and judgment with increased powers of action. From eight or nine years of age up to eleven or twelve mere play of action alone no longer satisfies a child. He wants to produce something of, *to him*, permanent value or use; and with his growing powers of hand, eye, and brain, he is able to obtain sufficient mastery of special processes to give skill in use. Materials such as are suitable to his powers of manipulation and control, and such as enable him to use these materials to express his own ideas of construction are to be employed at this stage—clay, colour, woven materials, cardboard, wood, etc. These will represent and illustrate modes of living and the identification of the child with earlier types of society, so that he may not get merely an intellectual view, but RE-DISCOVER and REALIZE for HIMSELF historic stages of social development. All such work to be connected with walks and excursions. More advanced work in the garden, such as the processes of potting, budding, grafting, etc., keeping records of growth, tem-

perature, and rainfall would come in the later stages, from eleven to twelve years of age.

From twelve to fifteen many of the earlier occupations might be extended, especially the clay and colour work leading up to modelling and design, whilst the observing powers and constructive skill gained during the earlier periods would be employed to help and to illustrate experimental work in mechanics, physics, and chemistry. Such studies would be necessary in order that problems which would have arisen from the study of nature out of doors and in the work of the garden might be satisfactorily solved. The knowledge of materials, their uses, processes of manipulation and construction, would be of great value in connection with the presentation of dramatic and historic pieces as concrete expressions of the knowledge which they would still be gaining of man and society. The school of the future must no longer be a place apart, dealing with a body of ideas and material from the adult standpoint and from outside, but must surely be such as to enable the child through and by means of the school to recapitulate typical phases of human experience in accordance with his own growth, wants, and development, and treated in such a way as will enlarge, enrich, and enable him gradually to formulate his own experience.

LIST OF MEMBERS, ASSOCIATES, AND CORRESPONDING MEMBERS, To May, 1903.

Members.

Auden, G. A., M.A., M.D., M.R.C.S.
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Galton, Lady.
Gaskell, Miss E. Penn.
Gavin, Miss Hilda.
Hall, W. Hamilton, F.S.A.
Hardcastle, John.
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Howard, W.
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Jones, Hugh R., M.A., M.D., B.SC.
Jones, T. H.
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Kerr, James, M.A., M.D., D.P.H.
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Melvill, Miss Elizabeth C.
Miles, Miss.
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Whyte, J., M.R.C.P., M.R.C.S.
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Woods, Miss Alice.
Yule, G. Udny.

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Poynton, Miss Florence Bertha.
Ravenhill, Miss Alice.
Salsbury, Miss.
Taylor, Miss.
Westaway, Mrs.

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Minister of Education, Madrid.
Minister of Education, Rome.

Childhood Society

FOR THE SCIENTIFIC STUDY OF THE MENTAL AND PHYSICAL CONDITIONS OF CHILDREN.

President:
RT. HON. EARL EGERTON OF TATTON.

TRANSACTIONS, VOL. II.,

PART II.

BEING

THE PROCEEDINGS OF THE SOCIETY FOR THE YEAR 1903.

PRICE HALF-A-CROWN.

Hon. Secretary:
W. J. DURRIE MULFORD.

Offices:
PARKES MUSEUM, MARGARET STREET, LONDON, W.

1904.

LIBRARY
MAR 30

The Society is not responsible for the facts and opinions given by the Authors.

The Committee regrets that the funds of the Society have not allowed of all the Lectures and Papers being published, and those appearing in this Part have necessarily been abbreviated for want of space.

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Childhood Society

FOR THE SCIENTIFIC STUDY OF THE MENTAL AND PHYSICAL CONDITIONS OF CHILDREN.

OFFICERS, 1904.

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(*Delegate from The Royal Sanitary Institute*).
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Hon. Secretary.

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Offices.

PARKES MUSEUM, MARGARET STREET, LONDON, W.
1904.

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G. E. Shuttleworth, B.A., M.D.,

Fletcher Beach, M.B., F.R.C.P.

E. White Wallis, F.S.S.

LECTURE AND PUBLICATION.

Fletcher Beach, M.B., F.R.C.P., M.R.C.S.

R. P. Cockburn, M.D., M.R.C.S., L.R.C.P.

M. Friedeberger, Ph.D.

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BIBLIOGRAPHY.

M. Friedeberger, Ph.D.

R. Langdon-Down, M.A., M.B., M.R.C.P.

E. White Wallis, F.S.S.

THE OBJECTS OF THE SOCIETY.

:o:

To promote the study of educational methods and of the environment of children during school life, best suited to ensure the mental and physical development of normal children, as well as of those whose conditions are abnormal, or who are feebly gifted mentally.

To supply information and diffuse knowledge on points connected with the mental and physical status of children, by means of publications, lectures, &c.

To promote the training of teachers specially qualified to deal with such children; and assist by legislation, philanthropic efforts, or otherwise, the provision necessary for them.

REGULATIONS RELATING TO MEMBERS.

:o:

The annual subscription of a member is half-a-guinea.

Members will have the privilege of attending all meetings for the reading of papers, or discussion, and all lectures given for the Society, and of borrowing books from the Library, and will receive copies of such reports as the Council may publish for general distribution.

A member may introduce one friend to the ordinary meetings of the Society.

Teachers of Hygiene and teachers of "Special Classes" are admitted as Associate members, without the privilege of voting at Business Meetings or of receiving the printed Transactions, by payment of an annual subscription of half-a-crown.

Societies, Boards of Guardians, and other public bodies are invited to join the Society as affiliated bodies, and may present to the Council questions arising on the care of children for discussion and report.

Childhood Society

FOR THE SCIENTIFIC STUDY OF THE MENTAL AND PHYSICAL CONDITIONS OF CHILDREN.

PARKES MUSEUM, MARGARET STREET, W.

REPORT OF THE COUNCIL

FOR 1903.

Read at the Annual Meeting on May 11th, 1904.

The Council, in submitting the Seventh Annual Report, have to record continued progress and activity in promoting the objects and work of the Society, by (*a*) arranging Lectures which assist the study of educational methods, and of the environment of children during school life best suited to ensure their mental and physical development; (*b*) publishing Volumes of Transactions and disseminating the teaching and information contained in the lectures and addresses given before the Society; (*c*) memorialising the Board of Education on the necessity of the Elementary Education (Defective and Epileptic Children) Act of 1899 being made compulsory on all educational authorities, and the desirability of provision being made for the special training of teachers to qualify them for the care of defective children; (*d*) offering to give evidence before the Physical Deterioration Committee; (*e*) appointing representatives to attend the Congress of the Sanitary Institute at Bradford, and the Conference of Special Teachers held at Manchester; (*f*) appointing representatives to the Joint Committee of the Teachers' Guild to consider the compilation of a Pedagogical Bibliography.

For the first time in the history of the Society the Council have to report that the membership has reached one hundred; including 14 Hon. Corresponding Members, 63 Members, and 24 Associates.

During the year five Members and three Associates were elected.

The Council records with great regret the decease of Mr. T. G. Rooper, H.M.I., who had assisted the Society, by his services as a

Member of Council, by presiding at, and giving, lectures, and by contributions to the Publication Fund.

PARLIAMENTARY.

The following Memorial was prepared and forwarded by the President to the Right Hon. the Marquess of Londonderry, K.G. :—

TO THE RIGHT HON. THE PRESIDENT OF THE COMMITTEE OF HIS MAJESTY'S MOST HONOURABLE PRIVY COUNCIL ON EDUCATION.

The Memorial of the Childhood Society humbly sheweth :—

1. That the Childhood Society originated from Committees of the International Congress of Hygiene and Demography, the British Association for the Advancement of Science, and the British Medical Association, and has for several years been engaged in the scientific examination of the mental and physical condition of children in schools.

The results of the examination of 100,000 children during the years 1884–91 have been tabulated, classified, and discussed in a Report issued by the Society, which affords information as to certain groups of children and the difficulties necessarily attaching to their education and improvement.

2. That facts and information arising out of the Society's investigations have been rendered to and published by :—

(*a*) The Royal Commission on Blind, Deaf, and Dumb Children.

(*b*) Departmental Committees of the Education Department, the Home Office, and the Local Government Board.

3. That after consideration the following conclusions have been arrived at :—

(*a*) Of school children about one per cent. are either physically or mentally deficient to a marked degree.

(*b*) In many districts these children do not attend school, or when attending do not profit by ordinary education, and have little chance of becoming useful citizens.

(*c*) Harm results not only to the individual but also to the State from the educational neglect of the feeble-minded child, the defective child growing up unable to earn a living, and peculiarly susceptible to evil influences.

4. From a careful co-ordination and consideration of the information obtained, the Society desire to urge the following recommendations :—

(*a*) That the Act of 1899, Elementary Education (Defective and Epileptic Children) [62 and 63 Vict., Chap. 32], be made compulsory on all Educational Authorities.

(*b*) That in the event of any amendments to the Act being contemplated, the Society think it very desirable that provision should be made for the special training of teachers who wish to qualify for the care of defective children, and that the Government should institute an inquiry into the best means of dealing with defective children in after life, and for determining the authority to be entrusted with that duty.

Your Memorialists pray that your Lordship will take into early consideration the necessity for making the Act of 1899 compulsory.

And your Memorialists will ever pray, etc., etc., etc.

President of the Society,

Chairman of Council,

Hon. Secretary.

PHYSICAL DETERIORATION COMMITTEE.

The Council, considering that the Society's investigations would have an important bearing on the work of the Departmental Committee appointed to inquire into the alleged Physical Deterioration of the People, asked Dr. Francis Warner to give evidence before the Committee.

MEETINGS.

Eight meetings of the Council and six meetings of Committees have been held during the year.

The Sixth Annual Meeting was held on March 19th in the Library of The Sanitary Institute, when the Report for the year 1902 was adopted and the following officers were elected:—

PRESIDENT.

Rt. Hon. EARL EGERTON OF TATTON.

VICE-PRESIDENTS.

The Rt. Hon. EARL OF STAMFORD; E. W. BRABROOK, C.B., F.S.A.; T. BRIDGWATER, LL.D., M.B., M.R.C.S.; RICHARD BIDDULPH MARTIN, M.P.; Rev. W. D. MORRISON, LL.D.; J. W. PALMER; G. H. SAVAGE, M.D., F.R.C.P., M.R.C.S.; Rev. T. W. SHARPE, C.B.; FRANCIS WARNER, M.D., F.R.C.P., F.R.C.S.

TREASURER.

RICHARD BIDDULPH MARTIN, M.P.

Mr. E. W. BRABROOK, C.B., was elected Chairman of the Council and Dr. G. E. SHUTTLEWORTH, Vice-Chairman.

PUBLIC MEETING.

By permission of the President a Public Meeting was held at 7, St. James's Square on May 11th. The chair was taken by the Rt. Hon. Earl Egerton of Tatton, President of the Society. Prof. T. Edgar M.A., Professor of Education in the University of St. Andrews, delivered an address on "The Universities and Scientific Study of Children, with Special Reference to the Teaching Profession." The following resolution, proposed by E. W. Brabrook, C.B., and seconded by Sir James Crichton Browne, M.D., F.R.S., was carried unanimously :—

> "That it is desirable that the Elementary Education of (Defective and Epileptic) Children Act, 1899, should be compulsory on Educational Authorities, and that special training should be given at one or more Training Colleges for Teachers who wish to qualify for the care of defective children. That the Government be requested to institute an enquiry into the best means of dealing with defective classes in after life and for determining the authority to be entrusted with that duty."

Among those present were The Duchess of Buckingham and Chandos, The Countess of Albemarle, Julia Marchioness of Tweedale, Lady Adelaide Taylor, Lady Galton, Mrs. Trench-Gascoigne, and others.

During the year two Courses of Lectures were held. The interest in these lectures has been well maintained.

It will be seen that in the selection of subjects and arrangement of the Lectures, much care has been devoted to securing for those interested in Educational Methods and the Scientific Study of Child Life an opportunity of hearing and discussing the views of authorities on the various problems.

The Members' Evenings, when short papers were read, produced discussions which were most helpful and suggestive. The Council trust that Members will offer short papers for future meetings, and by these informal discussions assist in directing greater attention to the individual conditions of mental and physical development, and to the environment and needs of children.

The Council have again to record their sincere thanks to the Lecturers who have so kindly assisted them by delivering these instructive discourses, and to the Chairmen who, by their presence and support, have helped materially to promote this branch of the Society's work.

The Lectures were as follows: —

THIRTEENTH COURSE.

"On Thought and Language," by Miss E. E. CONSTANCE JONES. "On Writing before Reading: A mode of Self Activity leading to Receptivity," by Mrs. E. WHITE WALLIS. *Chairman*, FRANCIS WARNER, M.D., F.R.C.P. (Members' Evening.)

"Honesty and Truth in Children," by G. H. SAVAGE, M.D., F.R.C.P. *Chairman*, E. W. BRABROOK, C.B., F.S.A.

"Mental Science for Teachers," by Prof. J. ADAMS, University of London. *Chairman*, Sir WILLIAM J. COLLINS, M.D., B.Sc., F.R.C.S., J.P.

"On What can be done in Special Classes to train Mentally Deficient Children for greater usefulness in Home Life," by Mrs. FLORENCE OWEN. "On Classes for Backward or Mentally Deficient Children in Boston, U.S.A," by W. CHANNING, M.D. *Chairman*, G. E. SHUTTLEWORTH, B.A., M.D. (Members' Evening.)

FOURTEENTH COURSE.

"Psychology and Education," by A. W. NEWTON, M.A. *Chairman*, E. W. BRABROOK, C.B., F.S.A.

"Healthy Dentition: Its Importance in Child Life," by R. DENISON PEDLEY, F.R.C.S.(Edin.), L.D.S. *Chairman*, FRANCIS WARNER, M.D., F.R.C.P.

"Nutrition and Education," by A. B. KINGSFORD, M.R.C.S., L.R.C.P., D.P.H. *Chairman*, R. HUTCHISON, M.D., M.R.C.P.

"Moral Defects in Children," by G. F. STILL, M.A., M.D., F.R.C.P. *Chairman*, S. DE BRATH, Preston House School.

SCHOOL DENTISTS' SOCIETY.

During the year a Joint Committee of the School Dentists' Society and the Childhood Society met and considered in what way the two Societies could best co-operate in forwarding their common objects. The Committee recommended, *inter alia*, that a memorial should be presented to the Board of Education, urging that instruction in Hygiene (including the Hygiene of the Teeth) be introduced into the code.

The Council are pleased to record that the four representatives of the School Dentists' Society have become members, and that one of their number delivered a Lecture before the Society on "Healthy Dentition; its importance in Child Life."

OTHER SOCIETIES.

Representatives of the Society attended meetings of other Societies as follows:—

The Congress of the Sanitary Institute at Bradford: Dr. CROWLEY, Prof. H. R. KENWOOD.

Conference of Special Teachers, Manchester: Dr. FLETCHER BEACH, Dr. HAMILTON HALL, Dr. G. E. SHUTTLEWORTH.

Joint Committee of the Teachers' Guild to consider the compilation of a Pedagogical Bibliography: Dr. LANGDON DOWN, Dr. SHUTTLEWORTH, Dr. KINGSFORD. The report of the Joint Committee is given at page 16.

TRANSACTIONS.

The advance and development in the work of the Society which marked the publication of Vol. I. has been sustained in the issue of Part I. of Vol. II., which contains several valuable Papers and Lectures delivered before the Society. It is to be regretted that the funds available did not allow of the publication of all the Papers, but the Council believe that the part issued, though small, will be found useful in disseminating a knowledge of the work done by the Society. The thanks of the Society are due to Mr. J. W PALMER for his services in editing the various papers.

LIBRARY.

A number of works on Educational subjects have been acquired, and in order that the collection may be as useful as possible, arrangements are made for members to borrow volumes by applying to the Secretary, and paying cost of postage. Several members have taken advantage of these arrangements, and some 50 books have been loaned during the year.

Members are particularly invited to assist in making the Library as complete as possible by presenting books, and by asking the authors of works of interest to the Society to send presentation copies.

ALTERATION OF BY-LAW.

The By-Law requiring *ten* to be present at an Annual Meeting to form a quorum, has been altered to *six*, which is now the number of members forming a quorum.

PUBLICATION FUND.

The contributions to the Fund during the year amounted to £12 0s. 6d., a sum quite inadequate to cover the cost of Vol. II.

of Transactions, the publication of which has reduced the balance of the Society's funds to a very small amount.

The Council record their thanks to those who contributed to the Fund, and trust that additional support will be given, and that members who have not already made contribution may see their way to do so in order that the publication may be continued.

FINANCE.

The Balance Sheet for 1903 shows a decrease both in the Receipts and Expenditure.

The reduction in the Receipts is accounted for by the contributions to the Publication Fund amounting to only £12.

Taking into account the work done during the year, it is satisfactory to find that the Expenditure chargeable to the year amounted to but £55, showing a considerable reduction upon that for 1902.

The balance in hand at the close of the year amounted to £13 4s. 8d.

It is hoped that the Members will endeavour to make the objects of the Society known to their friends, as it is desirable that there should now be some considerable numerical increase of membership to enable the influence of the Society to be fully exerted in many useful directions.

E. W. BRABROOK,
Chairman of Council.

W. J. DURRIE MULFORD,
Hon. Secretary.

May 11th, 1904.

THE CHILDHOOD SOCIETY.

STATEMENT OF RECEIPTS AND EXPENDITURE

For the Year ended December 31st, 1903.

	£	s.	d.	£	s.	d.
By Balance from last a/c				29	5	8
„ Subscriptions, 1902	1	6	0			
„ „ 1903	30	9	0			
„ „ (in advance)	1	6	0	33	1	0
„ Sale of Publications				4	3	6
„ Publication Fund				12	0	6
				£78	10	8

	£	s.	d.	£	s.	d.
To Honorarium				10	10	0
„ Printing and Publications				36	1	0
„ Stationery				4	19	0
„ Postage				6	16	6
„ Attendant, Lecture Room, &c.				2	0	0
„ Assistance				2	2	0
„ Incidental				1	7	6
„ Subscription to Biometrika				1	10	0
				£65	6	0
Balance at Bank	12	4	4			
Cash in hand	1	0	4	13	4	8
				£78	10	8

W. J. DURRIE MULFORD,
Hon. Secretary.

Examined and Audited,
J. W. PALMER, WILLIAM VAN PRAAGH,
21st March, 1904.

List of Donations to the Publication Fund.

Received in addition to List in Vol. II., Part 1.

	£	s.	d.
Rt. Hon. Earl Egerton of Tatton	10	0	0
Lady Douglas Galton	5	5	0
Mrs. Dickenson Berry, M.D.	0	10	6
F. J. Campbell, LL.D.	0	10	6
Miss Ellis	0	2	6
Miss H. Gavin	0	10	6
Prof. H. R. Kenwood, M.B.	0	10	6
Miss Poynton	0	2	0

REPORT OF

Joint Committee on the Framing of a Bibliography of Education.

THE JOINT COMMITTEE ON THE FRAMING OF A BIBLIOGRAPHY OF EDUCATION was composed of representatives of the following Societies :—

Bibliographical Society.	College of Preceptors.
British Association.	Froebel Society.
British Sloyd Association.	Private Schools Association.
Childhood Society.	Teachers' Guild of Great Britain and Ireland.
Child Study Association.	

It has met in all seven times, and has discussed the question referred to it. The members have among them defrayed all the expenses of stationery, type-writing, postage, etc., incidental to the meetings.

The Committee decided that it was advisable that the books mentioned should be exclusively those written in English or translated into English, exceptions being made under the headings, I.—Bibliographies of Education (foreign), and II.—Encyclopædias of Education.

It further decided that the headings should be as in the enclosed scheme, subject to such modifications as should be found necessary during actual compilation; and that there should also be a *Subject Index* and an *Index of Authors*. Provisional decisions were also arrived at with regard to the actual entries to be made in the case of each book mentioned (e.g., title, synopsis of contents, critical estimate, cross references, etc.) These last-named decisions are retained for future reference.

At the meeting of the Committee on Wednesday, February 10th, 1904, the questions of the actual work of compilation and its cost and of the cost of publication were considered; and it was decided that, inasmuch as neither the Committee itself nor the Societies which it represented possessed the funds requisite for compilation and publication, and as the work of the Committee had now been carried as far as it could be carried at present, each member of the Committee should report to the Society which he or she represented, and should advise that the Board of Education should be approached by a deputation formed by the represented Societies to urge that the

Bureau of Educational Information should undertake the compilation and publication of the much-needed Bibliography in question, or should do so in part. H. COURTHOPE BOWEN.

Any suggestions would be gratefully received by the Convener:—The Rev. J. O. BEVAN, The Teachers' Guild, 74, Gower Street, London, N.W.

JOINT BIBLIOGRAPHICAL COMMITTEE—PROPOSED SCHEME OF BIBLIOGRAPHY.

I. *Bibliographies of Education.*

1. English and American. 2. Foreign.

II. *Encyclopædias of Education.*

III. *Histories of Education.*

1. General. 2. Ancient: (*a*) Hebrew; (*b*) Various. 3. Early Christian and Mediæval. 4. Modern: (*a*) Monographs of Great Schools; (*b*) New Experiments (vide IV. iii. and X.) 5. Special Systems in the Past. 6. Educational Biographies.

IV. *Theory and Method in Education.*

1. Ancient. 2. Mediæval. 3. Modern (vide III. v. & X.)

V. *Methods in Special Subjects.*

1. Primary. 2. Secondary. 3. Higher. (Humanistic and Scientific as further sub-divisions, if necessary).

Under 1, 2, 3, sub-headings as follows:—

A. Languages: (*a*) English; (*b*) Foreign (sub-divided into: i. Ancient; ii. Modern). B. Literature. C. History. D. Geography. E. Nature-Study. F. School-journey. G. Natural Science. H. Mathematics. I. Drawing. J. Music.

VI. *Organization.*

1. Administrative: (*a*) Government, i. Central, ii. Local; (*b*) Finance; (*c*) Inspection and Examination.
2. Educational: (*a*) Discipline; (*b*) Classification; (*c*) Rewards and Punishments; (*d*) Libraries and Museums.
3. Appointment, Dismissal, and Pensioning of Teachers.

VII. *Education of Defective and Abnormal Children.*

1. General. 2. Physically Defective: (*a*) Crippled; (*b*) Blind; (*c*) Deaf, Dumb. 3. Mentally Defective: (*a*) Idiots; (*b*) Imbecile; (*c*) Feeble-minded. 4. Morally Defective: (*a*) Insane; (*b*) Truant; (*c*) Incorrigible; (*d*) Criminal. 5. Exceptional Children: (*a*) Backward Children; (*b*) Precocious Children; (*c*) Neurotic Children.

VIII. *Training for Professional Life.*

IX. *Training of Teachers.*

1. General: (*a*) Theory; (*b*) Practice. 2. Special: (*a*) Primary; (*b*) Secondary and Technical; (*c*) Handwork. 3. Teachers of Defective Children.

X. *The Beginnings of Education and Kindergarten.*

XI. *Educational Handwork.*

1. General: (*a*) Theory; (*b*) Practice.
2. Special: (*a*) Domestic Economy; (*b*) Drawing and Brushwork; (*c*) Metal-work; (*d*) Modelling; (*e*) Woodwork.

XII. *Psychology.*

1. Theoretical. 2. Applied. 3. Child-Study. 4. Mental Pathology.

XIII. *Ethical Education.*

1. Moral. 2. Religious. 3. Æsthetic.

XIV. *Physical Education.*

1. General Principles (including Anthropometry). 2. Special Systems. 3. Athletics. 4. Games.

XV. *Health.*

1. School Hygiene: (*a*) In relation to—i. Buildings, ii. Inmates (Teachers and Scholars).

XVI. *Home Education and Self-culture.*

1. Physical. 2. Mental. 3. Moral.

XVII. *Sociological Aspects of Education.*

1. Education and the State. 2. Education and Anthropology (Heredity). 3. Education and Crime. 4. Education in relation to Urban and Rural Population. 5. University and other Settlements. 6. (*a*) University Extension; (*b*) Summer Schools; (*c*) Holiday Courses. 7. Co-education.

XVIII. *Existing School Systems* (by Countries—Great Britain, etc.

1. Primary. 2. Secondary. 3. Technical, Technological, Commercial. 4. Higher. 5. Continuation and Evening Schools.

XIX. *Universities and University Colleges.*

XX. *Educational Periodicals and Reports.*

1. British and American. 2. Foreign.

XXI. *Education in:—*

(*a*) Periodicals; (*b*) Translations; (*c*) Reports.

XXII. *Fiction dealing with Educational Problems.*

XXIII. *Miscellaneous—Site, Buildings, and Grounds.*

1. (*a*) School Architecture; (*b*) Equipment, Furniture, and Apparatus. 2. Unclassified.

THE UNIVERSITIES AND THE SCIENTIFIC STUDY OF CHILDREN.

With special reference to the Teaching Profession.

By Prof. J. EDGAR, M.A., St. Andrews' University.

It was with considerable diffidence that I accepted the invitation of your Society to read a paper at your annual meeting. It occurred to me, however, that if I could do no more than give the Society definite assurance that their efforts were beginning to bear fruit, even beyond the range of their knowledge, and that there were signs that not only in the schools and the public mind, but even in the Universities, the scientific study of children was gradually claiming due recognition, my acceptance would not be considered presumption, and my words would at least have the effect of encouraging and stimulating you in your determination to have national education established upon a sound foundation.

It was the good fortune of my student-life to be brought under the influence and inspiration of two distinguished and enthusiastic psychologists—the late Dr. W. A. F. Browne and his son, Sir James Crichton Browne. As a result I entered upon the practical work of education with wider views than were common twenty years ago, and my work was made doubly interesting by the fact that my eyes were open to physical, nervous and nutritive signs presented by my pupils, and that even examination papers and exercises were full of psychological meaning. My experience taught me that much can be learned by an honest attempt to correlate the physical and the mental or moral characteristics of our children, and that scientific study of the children is as necessary in higher-class schools as in the schools of the poor.

Anatomical peculiarities of head, palate, nose and ears, nerve signs like twitching, or other "tics," of hand, mouth, or eyelids, stammering or other speech defects, nail-biting, peculiar gait and balance, can all be clinically studied in the secondary as well as in the elementary school, and that, too, for a longer period, extending well into adolescence. And the psychological phenomena which correspond to these can be observed exceptionally well in pupils whose studies

are developing the higher nerve centres beyond what is usual in primary schools; for example, untidiness in keeping books, cramped handwriting, mild forms of agraphia, premature fatigue as shown in restlessness, feeble attention, stupidity, irritability, headaches, and indigestion. Moral phenomena like untruth, bullying, tyranny, dishonesty, though not so common, are seen often enough for purposes of comparison and scientific observation.

Among the many valuable services which Dr. Francis Warner has done to the cause of education, there is one for which the teaching profession ought to be specially grateful, I mean the fact that he has so admirably classified the various ways in which the physical characteristics of children may be observed that there should no longer be any difficulty as to what points the schoolmaster should observe and record.

One of the most striking developments of University activity in recent times is the organisation of schemes for the professional training of teachers. It is not yet thirty years since the first Chairs of Education were founded in Edinburgh and St. Andrews. The impulse given thereby to the scientific study of education has been enormous. Within recent years new Chairs or Lectureships have been founded in nearly all the Universities and University colleges of England and Wales. In America there have been established not merely Chairs, but in some cases Faculties of Education, where every branch of the subject can be studied under an expert. The subject with its many sides, biological, physiological, hygienic, psychological, didactic, is vast enough for a Faculty, but there is a certain advantage in the meantime in having a Chair rather than a Faculty. The fact that education gathers up in itself many sciences and lines of investigation and gives them a practical unity of purpose is thus effected.

A considerable proportion of the arts students at our English and Scottish Universities are looking forward to a career in some branch of the teaching profession. But it is not yet generally known that a large and increasing number of prospective *elementary* teachers are now taking their training partly or wholly at the Universities. In Scotland, owing to improved facilities for secondary education, many such students are able to pass the University preliminary, and to take advantage of the opportunities which the Universities and the Education Department now offer. I hope that a full professional training will become necessary for every class of teacher and for

every inspector. I can conceive of nothing more calculated to enhance the practical and scientific value of the teacher's work, and to cast over it the spell of a new and intense interest, than a thorough scientific training in the biological, physiological, and psychological principles which are at the foundation of real education.

Dr. Clouston in a recent address illustrated my meaning when he spoke of the difficulty of the scientific study of children. "How," he asked, "can the study be undertaken except by one who is a physiologist, by one who is also a psychologist, by one who is also a pathologist, by one who is also a practical educationist?" By that question there is unintentionally suggested a rough outline of an ideal professional training for the schoolmaster. I say *professional* training to distinguish it from the education in arts which every teacher must go through to enable him to know his subjects. By his arts-course he acquires proficiency in English, Modern Languages, Science, Mathematics, or Classics. By his professional course he should be trained to *educate*. He cannot claim to be a professional expert in education unless he know scientifically not merely the theory of teaching, but the physiological and psychological bases of human growth and development.

In the future there must be a closer alliance between the physician and the schoolmaster. Both have the same wide aim. In the common cause of education they should be co-workers. The schoolmaster can help the physician, and the physician can help the schoolmaster.

The trend of opinion is towards some adequate system of medical inspection, not only for remedial purposes, but "to make available information of the highest value for ascertaining the facts of national physique." "The only feasible way of getting at such facts is by weighing and measuring, and carefully estimating the conditions as to health and disease, and the development and growth or decay of school children." To secure a reliable system of such facts there must be an increase in the points of contact between the two professions—and in the teacher's training there must be some provision made for a fair knowledge of the principles and facts of biology, physiology, and hygiene as they are related to education. There is room also for such an extension of the training of the medical man, as will provide a class of thoroughly qualified experts who may claim to be specialists in the medical aspects of education.

Education in the past has been too dualistic. On the one hand,

schools, colleges, and churches have been supposed to be responsible for mental and moral development; on the other, the proper care and training of the body have been too much left to chance, and the occasional assistance of the physician.

The doctor, as a rule, has been called in not so much to guide growth, as to find remedies for injuries or diseases which might have been prevented.

Science has been showing very clearly that this dualistic method must be given up, and that true education must consider both the mental and the physical as different aspects of the same living unity.

For education is (to modify the definition of Crichton Browne) the guidance of individual growth towards social fitness. Its aim is to develop in each individual his highest possible perfection as a member of society—to make the best of everyone considering his heredity, his constitution and his environment.

Prof. Mosso of Turin lays down this dictum: "The greater the advance of science, the greater should be the authority of the physician in education." This is true, but not all the truth, for he might have added "and the fuller should be the knowledge of hygienic physiology which the schoolmaster should acquire." The child is a living organism, and to educate the child we should know as fully as possible the working laws of that organism on its physical as well as on its mental side. Hence some study of the living mechanism is necessary for a scientific knowledge of the laws of education. It is indeed true that no amount of physiological knowledge can reveal to us the nature of mind. Psychology is just as necessary for the educator, but it should be studied in such a way as to enable him to see the intimate and necessary correlation between nervous and physical function and the phenomena which make up the mental and moral life of the individual.

Mind cannot grow except by the development of brain, and that depends to some extent upon good food, fresh air, sunlight, and physical exercise. But on the other hand the higher regions of the brain can be developed and organised only by intellectual work. The physical side can be perfected only by the operation of the mental. In other words, it is impossible to divorce the physical from the mental side of the question. We cannot cut the child educationally in two as with a hatchet and say, "This is mind we educate on the one side, this is body we educate on the other." Hence the process of education should be a unity of physical and

mental activities as the being to be educated is a unity. The "mens sana" must have the "corpus sanum" and *vice versâ*. The one is the expression of the other.

Now it is no exaggeration to say that the great majority of those who are at present trained in the Universities for the profession of teaching—the future masters in the secondary and public schools of the country—are profoundly ignorant of physiology and hygiene, and have no knowledge of what is meant by the scientific study of children. They study classics or mathematics, history or modern languages—with a little mental science—and because of proficiency in these subjects they are entrusted with the education of our boys. But they know nothing of the normal working of the organism whose growth they should guide, nor of the meaning of the countless anatomical, physiological, and psychological signs which should be a help or a warning in their work.

At the present moment, however, there seems to be a great awakening. Societies like The Childhood Society have done much by their efforts and the earnest preaching of distinguished scientists and physicians like Crichton Browne, Clouston, Langdon-Down, Warner, and others has at last driven home the truth.

The Report of the Commissioners on Physical Training (Scotland), recently published, cannot fail to give a great impetus to the movement for securing teachers fully and thoroughly trained in the physical as well as the mental side of their duties.

Personally I should be disposed to recommend that in the near future no headmaster or headmistress should be appointed to any school, and no inspector be appointed by the Education Department, or professor of education appointed by a University, who had not studied hygienic physiology and attended a clinical course in which the relation of physiology to education should be illustrated in a concrete way by the study of individual children.

It is for the Universities, if they are to justify their claim to provide a worthy professional training for teachers, as for doctors or clergymen, to do their utmost to secure that the necessary opportunities should be provided. And there is abundant scope for philanthropic patriotism in the way of founding or endowing such lectureships or chairs as shall supply the want.

In Scotland the Universities are now undertaking a large and increasing responsibility in the matter of training teachers—not merely for the secondary schools, but also for the ordinary State-aided schools. "Noblesse oblige." In undertaking this responsi-

bility they are *ipso facto* committed to the view that education has now reached the scientific stage. They must, therefore, lead the way, and set themselves to give such a training to teachers as will make them really capable of guiding and directing the whole growth of the young on scientific lines. It is surprising, however, to find how much ignorance still prevails, even in University circles, about the work that has been done in this and other countries in the way of research into the physiological and psychological bases of education. It is this ignorance and prejudice in so many quarters that block the way to rapid progress in educational reform.

The scientific study of children seems to me a necessary part of the University training of teachers. Children may be studied (*a*) from the physical point of view, (*b*) from the psychical point of view, (*c*) from the social and moral point of view. But these points of view must not be kept separate, but must be brought together in the observation of concrete examples. This implies opportunities for clinical observation in schools, and a preliminary training in physiology, psychology, and the elements of ethics to fit the student to observe with a scientific eye.

I am delighted to find that The Childhood Society recommends in its report, § 7, "That lectures should be instituted on the observation, study, and classification of children as to conditions bearing on mental life and education. This might consist of an elementary course and of University teaching. Arrangements should be included for demonstrations in a practising school."

To show how fully I agree with this suggestion, I may be permitted to state that in my own class in the University of St. Andrews I set myself, as a necessary part of my duties as Professor of Education, the task of delivering lectures and giving demonstrations on these lines, until the time comes when a properly-qualified medical man is appointed to take over these duties. A certain portion of my course of lectures is devoted to the physiological side of education—that my students may understand the nerve processes and the brain changes which go on when children are being instructed—and to the hygienic conditions of good school work. Through the kindness of the Professor of Anatomy the members of the education class have been able to visit the Anatomical Museum, and not only examine and study the models and specimens, but listen to demonstrations by Dr. Cameron on such subjects as the brain, the spinal cord, the eye, the ear, and the throat, and see under the microscope many excellent specimens of nerve cells with their processes and

development. Further, the Lecturer on Physiology, Dr. Frazer Harris, has given valuable lectures and demonstrations on the voice and the vocal organs, and in other ways has been ready to assist.

For reasons beyond my control I have not been able to utilize the practising schools for demonstration purposes as much as I should have liked, but in visiting the schools with my class I have been able from time to time to direct their attention to developmental peculiarities and nerve signs, and to the physical and psychical symptoms of weakness, malnutrition, and fatigue. My students have had as a text-book Dr. Warner's suggestive treatise on the Study of Children, and have been invited to make notes of actual observations made by themselves when conducting a class. Some interesting notes have been handed in by several of the students.

I hope that this side of our educational work will be still further developed. Of its interest and value to the teacher there cannot be the shadow of a doubt. The eyes of the students are thus opened to new possibilities in their career, a new interest is created which will carry them through much weary drudgery, and a new sense of the dignity and responsibility of education is awakened in their minds.

I strongly believe in the need for a preliminary and periodic examination, by a specially qualified medical man, of the children attending school. There will always be a wide field which only the eye of the skilled medical expert can survey. But there is much which can be done by a staff of properly trained teachers. The trained teacher might, as is suggested by the recent Commission, take measurements of height, weight, and girth of chest. He might note, for his own guidance and for the advancement of science, anatomical and other peculiarities, the various nerve signs, the symptoms of fatigue in different children at different times and seasons; and the correlation of all these with the mental condition, the conduct, and the progress of his pupils. He should know the normal stages of a child's growth both on the physical and the mental side—the nascent periods when new functions of the organism should naturally begin—and the neuroses of development in so far as these are likely to be observed at school. He should be continually testing his knowledge by experience.

Teachers, if properly educated and trained, will be able to gather together the facts in the life history of children that no other observers have the opportunity of gleaning with equal facility and for such a continuous period. If the future of the nation depends

largely on the health, physique, and energy of the people, then that future will now more than ever be in the teacher's hands.

This is too large a responsibility to entrust to men without taking every care to have them fully trained and equipped to undertake it. It is a responsibility which cannot, moreover, be laid upon the members of a hard-working profession without making arrangements for lightening their burden by increasing the staff of the schools and dividing the work.

It is for the Universities, and for the State as represented by the Education Department, to see that, in addition to the subjects of a University education, the teacher of the future receives a professional training corresponding to the greatness of this new responsibility which science is placing upon the shoulders of the teaching profession.

ON WRITING BEFORE READING:

A Mode of Self Activity leading to Receptivity

By Mrs. E. WHITE WALLIS.

We are all well acquainted with activity as a child's method of self-education prior to the class room days. For four years his little tongue has wagged unceasingly, except in sleep, acquiring by imitation the groundwork of the mother tongue—feet have been employed in measuring distance—hands in knocking things together and discovering qualities—eyes, ears, nose and mouth have helped him to a conscious understanding of the world about him as far as it lies within his grasp.

The first year in school life the wise teacher continues the child's processes only guiding them into wider channels and providing him with play fellows and work fellows of his own age and capability, thus encouraging his social and co-operative interests. This is known as the kindergarten of school life, and when carried through in the spirit, not merely with the technicalities, of the great masters Pestalozzi and Froebel, who still remain the deepest students and wisest exponents of child nature, it provides natural education.

But between the ages of 6 and 7 (and even a little earlier in some of the more mechanical schools) the natural method of guiding children in the gaining of their own ideas by means of their own activities, begins to give way to the more artificial method of endeavouring to educate them by means of the expression of other people's ideas, ready formulated and forced upon them. I mean in the teaching of reading and writing. The passive reception of the formulated thoughts of other people as expressed in books, may, of course, be stimulating to the growth of ideas in the more advanced student; but it is with the early days of chilhood we are now dealing.

We have probably all read Prof. James' "Talks on Psychology to Teachers," and have agreed with him in saying that up to the age of 10 or 11, *constructiveness* is the instinct most active, and that by the incessant hammering and sawing, dressing and undressing dolls, putting things together and taking them apart, the child not only trains muscles to co-ordinate action, but accumulates a store of

physical conceptions which are the basis of his knowledge of the material world through life. Clay, wood, metals, and the various kinds of tools (amongst them let us remember papers and pencils, black boards and coloured chalks) are made to contribute to the store: and a youth brought up with a sufficiently broad basis of this kind is always at home in the world.

The broad subject before us is the wide-reaching psychical motives for training the activities of childhood in school as a first step to its receptivity of knowledge—a condition that shall remain with it throughout life; but the psychical laws arrived at, from the observation of the man and woman in relation to the development of their youthful minds, become more valuable to the teacher when re-applied to specific subjects of instruction. The teaching of writing before reading, therefore, stands only as one example of the attitude of mind that the educationist should take in school life, with regard to the relation existing in *all* subjects between activity and receptivity.

"Why should the teacher reverse the usual order of teaching and place writing before reading, and how should such writing be taught?" The answer of applied psychology is—because by so doing, the teacher will be following the development of the child's mind, and will bring his practice into line with the theories he has deduced from his study of child-nature.

"The acme of education," says Herbart the psychologist, "is to awaken and to satisfy a many-sided interest. The subject matter chosen for instruction must awaken interest that is spontaneous, and its great value depends on its accompanying the individual, not only through school life, but in inspiring him afterwards."

Writing, at about five years of age, will answer all these requirements. The interest in drawing and writing is easily aroused because it requires the spontaneous activity of the child. Writing—quick, legible writing—is and should be a more educative implement throughout school-days than mere reading, and, as one of life's activities, it belongs to the social interests bringing men and women together, where reading has by its nature an exclusive tendency.

Goethe observes that "The mind will receive nothing that does not suit it." Well, the process of learning to read does not suit the untrained mind of a little child. But a child trained by writing—writing its own vocabulary—words that are understood as belonging to things, and its spelling or sound-building determined, will find it fairly easy to read other people's vocabulary as found in print when the proper time arrives.

We have all heard of little books offering to teach children to "Read without Tears," but no one thinks of suggesting "writing without tears." All children like to learn to write—it is something to do. That they do not all continue to wish to write up to the age of nine or ten is largely due to the "cart-before-the-horse" method which we have adopted in this matter, by placing reading before writing, or taking them simultaneously, and so interfering with the quick progress of the writing.

It would be well to consider the proposition of writing before reading in the light of the following simple psychological observations verified again and again by rational educationists:—

1. That there is but one method of instruction, that which conforms exactly to the laws of the human mind and makes all its arrangements accordingly.
2. If a scholar works under pressure, if he feels learning to be a burden, there can be no mental growth. Free interest must prevail.
3. So far as possible the work of instruction should be so arranged as to produce little waste in the formation of fixed series of ideas.
4. The developing personality of the pupil is a centre to which manifold interests must always be referred.

Now, in learning to write, free interest does prevail. The kindergarten child of five has learned to draw—large curved scribble chiefly, not straight lines and angles in checkers, he has learned the co-ordinate action of making his hand represent—to himself, at least, and he confidently hopes to others also—that which his eye has seen, and he has a ceaseless desire to employ his pencil and chalk on paper and blackboard, or on papered walls and painted doors if sufficient proper material is not forthcoming.

How easy it is to guide this instinct into an active desire to write, when the child has discovered that writing is the best means of conveying his ideas to others at a distance. This is a matter for simple experiment. Besides incessant scribbling, the child has had four years of practice in symbolising his own abstract thoughts in the concrete sounds of language. The tonic-solfa students present will recognise at once that the concrete in language, just as the concrete in music, is sound.

The child of five has provided himself with a certain amount of concrete language, he has trained his hand somewhat to obey his will, his imitative faculty is strong, and the time has come when he

makes this demand upon some "grown up," "I want to write a letter, like you do," "I want to make my scribble mean something." This then is the pyschological moment for the teacher to show the child those forms of scribble, "The Alphabet," that have been adopted by all people to "mean something."

The written symbols that stand for the first and last strong sounds in love, *l v* with the round *o* between them, and the little *e* to end with, will make a first lesson in writing—these signs should not, however, be told to the class as the names of letters, but as symbols of sounds they have made themselves, and they must discover for themselves that they made the *l* by raising the tongue upon the back of the upper teeth, and letting the breath escape at the sides, *v* by checking the breath escaping from the mouth by pressing the upper teeth upon the lower lip, *o* by rounding and protruding lips, and *e* by making the slit shape of the mouth, and then they must understand that those symbols will always be used for the same sounds, with the few modifications that will be attended to as they arise.

The word "love," written readably, might be taken home by each child to the mother, to whom it rightfully belongs, and an understanding may immediately be established between the parent, child, and the teacher, which may prove invaluable later on.

This method of writing sounds and building up symbols to stand for words, gives the child grasp of his vocabulary, it engraves the spoken word upon the mind by the most intelligent process, not only by analysis but by synthesis, and it thus becomes a part of the mind-content of the child. It insures his language to him, with a right pronunciation which stands less chance of being lost easily by hearing the wrong pronunciation out of school; the line of associated thought having been set up in the brain, the child's natural effort will be to correct the improper sound by reasoning out the right sound, instead of by simple imitation immediately adopting the wrong one again. The more often the child hears the wrong sound out of school, the more need is there to counterbalance the evil by a varied and intelligent concentration of attention upon the right sound in school.

A child brought up on a sufficiently broad basis of this kind, before he is introduced to the symbols of other people's thoughts, obtains a mastery of his own vocabulary, with great power of adding to it, and is always at home in the English language as far as it has come within his experience. And this is the place to add that a child who has felt at home in his own language for a few years,

appreciating its comparisons and its contrasts, finds the true knowledge of the mother tongue a great help in the acquisition of a foreign language if later on he should need to learn one.

Reverting to our third psychological axiom that the work of instruction should produce as little waste as possible in the formation of a fixed series of ideas. In learning to write the idea grows of itself, and soon becomes a fixed idea in the child's mind, that if he wants to express his concrete sounds in these well understood symbols, he must carefully think out his sounds before chosing the symbols to match them. This is spelling, and it is learned with interest, and removes for good the thought that spelling is arbitrary and difficult of attainment; the instances are few in a child's need where spelling is not in its largest sense phonetic, or the syllables cannot be found in other words already familiarised. The teacher's own trained intelligence is here the pupil's unerring guide.

The fourth and last axiom is: That the developing personality of the pupil is a centre to which manifold interests must always be referred. Now the child who has learned to appreciate the art of writing simply as a form of expressing his own thoughts and ideas will, among other personalities, have developed a sense with regard to reading that is not taken by all children, students, or even grown men, of to-day. He will have learned to estimate books at their true value, simply as records of other people's thoughts and opinions —not as unquestionable law; and he will further appreciate the fact that though he may be able to read the words of their records, he cannot enter into their thoughts and ideas unless, like the writers, he has made that possible to himself by having first of all attained to the same or similar real knowledge that the writers have done, by having worked through the same or similar experiments in the concrete.

If all teachers of the little ones were to acquaint themselves with the methods indicated by Miss Dale, Dr. Frank Heath, Prof. Walter Rippmann, etc., and then, by exercise of their own individuality in perceiving and guiding, were to substitute the written characters for the printed ones, and—which is of much more importance—substitute the expression of the child's self for the endeavour to reach after the expression of another, the first false step in education would vanish from our class-rooms, and in its place we should have one more year of natural training to enlarge the foundations of future rational school life.

HONESTY AND TRUTH IN CHILDREN.

By Geo. H. SAVAGE, M.D., F.R.C.P.
(Vice-President.)

Before starting my subject in detail I must point out that as I have, from a professional point, to see so many aberrant children my opinions may appear to be too pronounced, and you will use your own experience and judgment in modifying the picture which I may present to you.

Each healthy child starts with some power of learning the differences between good and evil, of right and wrong. The power of learning these differences varies. It has been pointed out by Sully and Perez that children under a year old recognise certain duties and react in accordance with their feelings. Children must be considered as primarily self-centred; the whole world is in, and with, them, and it is through their self-feeling that later ideas of duty to others must arise, for truth and honesty have to be looked upon as altruistic virtues.

There is no real appreciation of truth as truth, or of goodness as a virtue, as in fact anything but a something which leads to the personal and immediate comfort of the child. The healthy and acute child very soon associates pleasures gained with the performance of certain actions or the refraining from others. Thus, first we have to establish a good habit, which will be sooner or later followed by good wish or intention, and only then comes in the warmer and higher feeling of moral well doing and well being. So from this I shall try to point out how, normally and abnormally, various degrees of truth are established.

First, as to Truth, its development in children and its perversions. When I looked up "Truth" in Sully I found he referred me to "*lies*," thus seeming to confirm the wide-spread idea that all children lie more or less, sooner or later. Some believe that lying, like measles, is an affection which had better be got safely over. I will not bind myself to the definite statement that all children lie, but I am equally unwilling to accept the statement of some fond mothers that their

children have been so well brought up that they *never* told a lie in their lives. I should fear for the future of those children. You may consider I am rather like my friend Professor Sully as I begin my study of Truth by pointing out what I think about untruth, but it is best thus, I imagine, to treat the subject; at least I am best able thus to handle it. I would say then that there is not in my opinion any innate sense of equity. I know I shall run counter to the feelings of some of you, who even from your own childish experience think that a sense of the injustice of certain actions of your parents or guardians caused an instinctive feeling of wrong quite apart from any other sense of comparison with other experiences. Nevertheless, I believe that it is long before the conception of Truth dawns upon the child mind. The child, living from moment to moment, storing impressions many of which seem lost for ever, but which are really building an invisible substructure, does not compare the real with the imagined.

I dare not give a definition either of truth or untruth which can be supposed to cover all the ground. The simplest plan will be to give examples of the chief deviations from truth, which may, after all, be treated as factors in establishing the moral sense of truth We are astonished if our children do not speak the truth, but many of our children's habits are our own, written clearly and plainly. We begin by telling children fairy tales, and I for one hope future generations will continue to do so. The child begins by accepting everything from Jack the Giant Killer to Cinderella as facts, and it is a shock when he first discovers they are not. He has been believing an untruth, yet, oddly enough, I have found it a rarity for a child to blame his nurse or parent for telling him tales which were not true; he is sorry that the story was not true, but he does not blame the teller, and I do not think, as a rule, has yet reached a point when he appreciates untruth from a moral standpoint. Children are told these tales, and for long periods accept them, and they expect their seniors to enter into the make-beliefs. The sense of the unreality of the tales is often slowly developed, and even when developed the children will still go on with make-beliefs and wish others to join in them. Thus, though knowing that there is not a bear in the next room, they will pretend and expect you to pretend that there is. I do not see that these games in any way injure the truthfulness of the child in the future as a rule, but I wish to point out that there is a very narrow line between these fairy tales and the romantic lies which are so very perplexing to parents. For example:—A girl of six

comes home from school in a state of excitement, and, when asked by her father what was the matter, enters into a detailed description of how the mule of a neighbour has fallen over a precipice and been killed; so away goes the sympathetic father to see if he can be of any service, only to find that no accident has happened. Here the child, well knowing that her tale would be disproved, allows her father to go and discover her fault for himself. In another case a girl was in the habit of asking her school friends to go to her mother's on some future day for tea and garden party, but within two days of the date she always had some ready excuse to put off the party. This was repeated several times before her friends discovered that it was done in a way to increase her own importance and position in the school. I have known boys who constantly returned with tales of misfortunes which had occurred to other boys at school, and I have met with every variety of untruth of this kind; in some cases the lie was less romantic and with more definite plan to conceal some fault of the boy's. The romantic lies are to my mind very interesting, as they seem to be merely the expression of the child's wishes and ideas. I am certain that undue harshness in correcting them will do more harm than good.

Just as the instinctive movements which are called restlessness in children should be regulated, not suppressed, so these imaginings had better be trained, not crushed. There, of course, are extreme examples, such as that of the girl who was always misleading her father into wasting his energies and his compassion, which have to be taken seriously. I believe judicious neglect and occasional punishment of a simple kind to be more useful than violent measures, though I have to admit that a Swiss guide of mine, who had a romantic child, said when I met him again after several years "Thank God I have thrashed it out of her." In some of the romantic children there is a simple running over of words and ideas which may be reasonably compared with the healthy restlessness of vigorous children. These children say sometimes whatever comes first, which is a very perplexing variety of untruth. I have met with many children who were said to be so lazy they did not trouble to think, but when a question was asked, they gave any answer which came first into their minds. These children generally require steady training and discipline;—more attention than the simply romantic ones.

I have so far referred to what might also be called accidental lying, to which one would not attach much, if any, moral fault, Now comes another form which is not uncommon, and which has a good many

varieties. I call this the cowardly lying. Some so-called nervous children, even with indulgent and kind relations, are always timid and willing to say anything which they think will please those about them without regard to the truth. I have thought there were races who seemed to be infected with this pleasing but weak fault. The cowardly liar may, as I say, do it only to please others, but in more instances it is to shelter himself from some dreaded consequence. This may pass from the accidental to the habitual lying, which in most cases depends on the surroundings and education of the child, and if anyone is to be punished it should be the parents or guardians of these children. I sometimes wonder when I see the thoughtless harshness of women of the lower orders that their children ever speak truthfully to anyone. The parents have for every fault but one reproof, which is a blow. Among the cowardly lying has to be reckoned that with which the more or less timid child shields himself while throwing blame on others. This I have called malignant lying. It is generally associated with other forms of moral defect, and probably is most commonly met with in children who also steal.

I have already spoken of the connection between romantic untruth and the simple play of the imagination, and have endeavoured to point out that the simple habit may grow into a vice. I must now show that with some forms of initial mental weakness there is what might also be called a Genius for untruth. I remember one lad whose tutor said that he told most objectless lies in some instances apparently merely to tell other lies to get out of the difficulty he had himself caused by his lies. It is a common idea that lies lead to other lies, and in this instance it was well shown. On the spur of the moment this genius in lying could make up a plausible lie which took long to unravel.

I have spent some time on what might be called the pathology of the subject, but it appears to me necessary for the full comprehension of many forms and degrees of untruth. I repeat that there is no organic instinctive knowledge of Truth, that this has to grow from experience, that the power of receiving and adapting this must differ greatly with the child, and even with the age and health of the child, for I believe I have seen lying as a temporary symptom of bodily disease which was relieved by rest or some simple remedy. Undoubtedly quite harmless "make beliefs" may give rise to habits of romancing which may become troublesome and even dangerous, but children often lie from moral weakness. Some with marked mental deficiency seem to forget what has happened and are romantic from

forgetfulness. The romantic untruth, so long as it is not malignant, is best treated by letting the child suffer from ridicule or the direct consequence of its own act. The weaker the lie and feebler the mental power the less should be the severity, but more consistent and persistent the punishment.

In a very large number of children the untruthful stage passes. I have known it to pass suddenly as if the child had awakened to the sense of Truth, to a new physical sense.

Next as to Honesty and its development in children. It seems quite certain that no original sense of rights in property can exist. There is no primitive idea that things which come in contact with one are not in fact part and parcel of oneself. The child from the first learns that his parents and nurses belong to him, not he to them. He sees that nearly all his surroundings are conditioned for him, and naturally gets to believe that he is the centre. Once more I have to say that egotism is the starting-point of the child's mental relationships. The earliest noted impressions come with the pleasure of warmth and nourishment, and it is not astonishing that some weak-minded children never get beyond the simpler desires for bodily satisfaction.

The child appropriates everything within touch at first, and it is one of the earliest lessons which has to be inculcated that the little hands must not touch everything. Touching is the first step to acquisition. There seems to be a distinct division between mere acquiring and acquiring for personal use. Some of the thieves of the lower animals like the Raven and the Magpie simply collect and hoard without using, being in some degree like the miser, though I doubt whether they have either the pleasures or pains of the miser or mere collector. There are children of the magpie type who collect and collect everything which comes in their way, and I may remark here that this collecting, like many other traits of childhood, reappears not uncommonly with age and senility. The collecting stage begins early, but is more marked in early boyhood than at any other time; the normal boy fills his pockets with the usual collection of strings, stones, knives, and other odd things. This is not objectless collecting altogether, but it is nearly allied with some of the earlier stages of dishonesty. I have met with a good many boys of rather feeble mental power who have begun as collectors, but later have become adroit thieves. If I had to refer to any special dangers, I should say, at present, stamp collecting, and formerly birds' egg collecting, led to pilfering. This lust for things is remarkable. I may refer to one

boy who, being altogether an exemplary lad, though not very strong physically, was thus rather thrown upon his home resources for pastime. He took most intelligently to collecting stamps, made a good collection, and appeared to be fairly benevolent in his exchanges. Gradually, as his collection got more perfect, he found he had not money enough to get the rarer stamps he wanted, so he took at first to pilfering from his relations, and later from anyone from whom he had the chance. The boy grew to be a thief without appearing to recognise what was happening. Such a boy may, by steady persistent training and watching, get over the habit, but it is a serious danger.

Children of rather a lower mental type appear to be overpowered by desire, and here we may compare the child with the adult. Adults suffering from Dipsomania will get drink honestly or dishonestly, but get it they will. So a simple lust for some kinds of food, particularly sweets, will, in my experience, make a child a thief. I have known a fair number of such children who would make the strongest resolutions, and endeavour to wean themselves from their failing, but who, when tempted, always fell.

Doubtless many of the failings which come before me have some relationship to failings in a parent, and I have been particularly struck with hereditary dishonesty. This is recognised in the criminal classes, but here it is hard to distinguish what is inherited from what is acquired, the surroundings having so much to do with the future of the child's habits and mind. I have seen such cases of parentage as the following:—Parents who have always prided themselves on their strict business honesty, believing that they have never done a dishonourable thing, but who have been recognised by their fellows as hard at a bargain and ready to take legal advantage of their position—a typical specimen of some forms of speculative men. I do not know much about betting men, but I should expect to find men of that type with very strict ideas of honour, only their ideas of honest labour might differ from ours. Men who have made fortunes, and who have been looked upon favourably because they were rich, but doubtfully from certain other points of view. I have met sons of such parents who have become most adroit thieves, and others who have become professional sharpers. In the first instance the sense of honesty exists, and the knowledge of the penalties involved in stealing are also present, but the one does not influence, nor the other deter from evil action. Take, as example, a lad who had been carefully brought up, and had been for a time at a good public school. He did not go to a university,

but went straight into business. His father, who was one of the successful but not over-scrupulous men, was horrified to discover that his son was a petty thief, and I had to see him. He admitted at once, and with a little shame, that he was a pilferer. I shall not soon forget his own explanation. He said he understood I was something of a sportsman, and therefore knew the pleasure of overcoming difficulties in obtaining one's ends. "Well," said he, "if I find a fellow clerk has half-a-crown in his waistcoat pocket, or has placed it for safety in any specially secure place, I am restless with desire to get it. It is the getting, not the having, which entices me. I give it away as soon as I have it, and regret in my heart that I may have deprived a worthy fellow of a meal or of a necessary, but, notwithstanding, let the temptation arise once more, and I take the thing or try to."

How is one to meet such a case? It is only a natural development of a parentally acquired habit. This carefully planning and designing of thefts does not necessarily imply full moral responsibility. I remember one lad who had a hobby like the stamp collector, but it was of another type. He collected, stealing from even his own parents, and, at the same time, docketting the things with dates, and arranging them after a plan of his own. He was in a way responsible, but, knowing his heredity, I should have felt justified in defending him as having only mitigated responsibility.

No doubt children may pass from being perfectly truthful or honest to the reverse, as a result of physical or mental disease. I have on many occasions been told that till a child had had convulsions, or what was variously called brain fever or meningitis, he was honest, but that later he ceased to make progress in his studies, and steadily deteriorated morally. We have then to admit that the moral sense may depend on a temporary state of the nervous system, and, just as in some cases the vice of untruthfulness or dishonesty may be grown out of, so in others appropriate medical treatment, or simply neglect of educational methods, may restore to the paths of virtue. In the same way it is not very uncommon, in association with the emotional development of puberty, to meet with some disorder in relationship to truth or honesty. I have seen many so-called hysterical cases in which the sense of truth seems to be lost. There is the cunning malingerer, who writes abusive letters to herself, and causes social worries. There are others who produce serious wounds on themselves with the view of causing attention or sympathy, thus a girl who produced sloughs on her arms with caustic

potash. In other cases of less painful nature girls have been said to live without food, as in the famous case of the Welsh fasting girl, who paid her life for the folly, being carefully watched by medical men. In the same way I have met with odd mixtures in which the girl or boy would steal things, conceal them, not making any use of them, and appear to assist diligently in search of the lost articles. It is certain that at puberty any of the evidences of moral defect may occur.

A specially difficult question often arises as to the consciousness of the child during its actions. I admit that when I hear a plausible tale from a parent that a child has always been good, truthful, and honest, and denies any knowledge of how certain things have come into his possession, I doubt the truth of the statement, yet it is just possible one may be doing an injustice to an innocent person. There is no doubt of such a thing as automatic stealing. An epileptic state of automatism may exist in which, as in somnambulism, most elaborate and apparently conscious acts may be performed. The French have described, under the term "l'epilepsie larvée," what we call "marked epilepsy." On the Continent much more sensational actions occur than with us, and I have read of wonderful collections of stolen articles being taken from unconscious thieves. One must have pretty clear proof of the epilepsy before believing the statement.

In these hysterical or developmental defects exposure may be of some service, but time and change into moral surroundings will be the best remedies. I have, however, known the pilfering habit started in childhood or at puberty to develop into confirmed kleptomania, and this is interesting as this moral defect may again occur or may appear for the first time at a later and critical period of life. I have known one extraordinary case of this kind in which a public office clerk lived his double life of respectability and pilfering, even marrying without his fiancée discovering his vice.

I may be expected to point out more fully under what mental conditions child dishonesty arises. In the first place it may arise from want of experience, there being, as I have already said, no innate sense of Rights of Property, and some children being long in learning these rights. These are chiefly children who are more or less weak in mind, but the line is narrow between those who are simply in arrears and those who are really wanting. Some strange children seem to be unable to establish the relationship between their actions and the consequences. For example, I have met children who have been corrected for a theft, and have appeared to understand and

endeavour to do right, but who at once will do the same thing even though a policeman were handy. One has to consider all such cases as unfavourable, and as having an essential and special mental defect.

Nearly allied to these children we have some in whom either there is great deficiency of memory or such a lack of attention that the punishment is forgotten at once, and the act repeated if the temptation arise. Stealing may, therefore, arise from want of experience or retarded retention of experience, want of mental association, and loss or want of memory, and these states may be permanent or temporary, remediable or not, and I suppose I ought to say also punishable or not. From the other side we have to consider that stealing may arise from overpowering desire or insufficient control. This comes to the same thing, but really the two states are very different, and to impress my meaning I would say that we may have excess of passion in one form or another arising with the over-development of the animalism of youth as well as with the decreasing power of control seen in old age. The overpowering desire which will lead timid animals to be bold thieves I have seen in one or two cats, whose passion for game or fish made them disregard the presence of their natural enemy the dog, or their equally determined opponent the cook. As I have pointed out, this is seen in adults in cases of drink, and I constantly see it in reference to sweets in children. The uncontrolled longing for possession may be general or special. It may be of a magpie description, or it may be more fully organised and carried out with design. There is the child collector who will collect regardless of truth or honesty.

I now come to consider a very interesting parallel to the Romantic Liar. I have met with several children who were dishonest in various ways and in different degrees who made no use of their thefts for themselves, but lavishly gave things away. The cunning clerk who stole for the sport of stealing gave the spoil away, but rather to get rid of the evidence of his fault than for any other motives, but the children I now refer to will steal money for choice and then spend in benevolence. I have known adroit stealing of cheques and money only to buy cakes to give away, and I have known a young girl who stole and got blankets and gave them away in her mother's name. Such cases resemble the hysterical or developmental cases, and generally are outgrown.

Thefts in some cases appear to be simply insane acts without rhyme or reason. Thus, a leading boy at a public school who had been overworking and sitting up reading late became rather irritable

and changed in many ways. He had plenty of pocket money, but, there being a chance, he took money from a special schoolboy friend which was to take the boy home. He thus caused his little friend inconvenience, but he promptly lent him the money which he had stolen from him. To take another instance. A boy who had been a good and promising student took a postal order which he knew perfectly well had been put in the way as a trap for an undiscovered thief. He went in his house colours to the post-office and cashed the order. This was, from first to last, unreasonable and the result of overwork. The boy had rest and recovered altogether. There is such a thing as designing stealing with an object. Fortunately this is rare; but I have seen several boys who had been home-bred, who, when sent to large schools, were so homesick that, rather than remain at school, they preferred to be expelled as thieves. They are comparable to the cowardly liars. To sum up on this part of the subject, stealing may be a symptom of mental weakness or it may be a sign of mental or moral defect. It may in some cases be remedied by judicious treatment, it may be outgrown, or it may develop into confirmed criminality or into confirmed kleptomania.

In conclusion, there is, in my opinion, no innate sense of truth or honesty, but children learn by experience in very different degrees. Some are dishonest or untruthful as part of their mental deficiency, being morally imbecile. Others are defective as a result of temporary or transient conditions. There are stages of evolution in the child's mind when the imaginative faculty overrules control: when, in fact, the mere exercise of the function, regardless of what we call the Truth, leads to story-telling; in the same way, in the earlier stages of growth there is a period when simply acquisition without consideration is quite normal, but this may pass into a habit of dishonesty which is a vice. No two cases of untruth or dishonesty can be treated as quite alike, yet the cases group themselves fairly suitably under the heads which I have demonstrated.

SPECIAL CLASSES FOR BACKWARD CHILDREN

In the Public Schools of Boston, Mass., U.S.A.

By WALTER CHANNING, M.D.

(Hon. Corresponding Member).

The number of special classes in Boston at the present time is six. These are scattered over different portions of the city, one being in East Boston; two in different parts of Roxbury; one in Chambers Street, West End; one in Appleton Street, South End. The number of pupils is about ninety, the intention being that there should be fifteen in each class. The number of boys considerably exceeds the girls, excepting in one school which is for girls alone.

The classes were started five years ago, but up to within two years there have been only two of them. Since that time a movement has been made to reorganize and develop the method of forming and supervising them. Classes are now being formed as fast as the school authorities deem it possible, with all the demands made on them for the expenditure of money in other directions.

The first two classes were composed of children of rather a low grade, but with the development of the new plan, an effort has been made to select children who are not low grade imbeciles, but of the higher grade, and also who are not too old. Sixteen is supposed to be the limit of the age up to which they remain in the classes, but there are some instances where the children are older, these having been for some time under instruction. The average age is probably somewhere between ten and twelve years, though this is only a rough guess.

Less than a year ago the examination of children who should be put into these classes was intrusted to Dr. Arthur C. Jelly, who has shown good judgment and tact in dealing with the question from all sides, which is a matter of considerable importance. Apparently, the school authorities are not yet convinced that these classes are a necessity, and they are slow to adopt them.

There was a good deal of objection at first on the part of the parents in many cases in acknowledging that their children required

any different instruction from the others in the schools. The result is that there must be a large number of defective children in the schools who are unfortunate in not receiving the benefit they might, if put into the special classes. The experience has been generally that, when the children have been in the latter for a while, they begin to improve, and in the classes that have been established longest it is possible to fill vacancies by application, showing the growing confidence that the parents have in them.

Dr. Jelly, as already stated, in selecting children has been wise enough to take those that were not of a very low grade of imbecility, but rather those of high grade, not too old, and capable of improvement. Of course in the end all classes of feeble-minded or defective children should not be included in the average school population, but it will be a long time in this country before we arrive at that point.

In such a mixed population as a New England sea-port town like Boston affords, we find children of different nationalities in different sections of the city. In one place we get children largely of Irish parentage; in another with these a few American children. In another part of the city there are Russians, possibly Italians and children of varied European parentage. The average among the latter at present appears not to be quite so good as among the former. In several of the classes a negro child is found.

The instruction consists, for the children who are bright enough, of simple lessons in writing, arithmetic and reading, and manual training for all in a variety of ways. The more intelligent children have lessons in sloyd with the use of tools. There is making of simple baskets with rafia and reeds, and cutting out of various objects with scissors. Also the use of needles for doing work with worsted on canvas, and finer work sometimes for the girls. Drawing is carried as far as possible, and clay modelling also is included. Exercises in physical training are given at certain intervals through the day, and simple games are played.

The methods used in the classes have been hitherto rather in the hands of the teachers in charge of them, but, under the present plan, they will be arranged by a competent supervisor, and the effort made to develop them harmoniously in accordance with the most recent ideas.

While the numbers are small, still it may be said that this department of education is well under way, and it will be possible to avoid mistakes which might have been made at an earlier period, and, with large numbers, would be difficult to correct.

The plan of selecting children is somewhat as follows. Teachers who have backward children report to the Superintendent of Schools and he hands the teachers' reports to Dr. Jelly, who examines the child and has the authority to either leave him in the school where he is or place him in the special class to which he believes him to be adapted. The placing of this responsibility on one person seems in Boston to work very well. The physician not only assigns the child to the class, but from day to day visits all the classes and observes what the physical and mental condition of the children is what progress is being made, and whether or not anything can be done to improve upon the conditions from a medical point of view. He does not attempt to decide upon the courses of study pursued, as that must be largely a pedagogical question, but by co-operating with the supervisor in charge of the classes a medical man must necessarily, if wise and experienced, be able to give most valuable advice from day to day as to what the child is capable of doing mentally and physically. An average child may be expected to do an average amount of daily work, but a mentally feeble child is a shifting, fluctuating, unstable quantity, hardly the same in power to achieve for two consecutive hours. The school teacher and the medical man must be in close touch to produce the best results in the special classes. Fortunately, such is the present arrangement in the Boston schools.

The total number of pupils in the Boston Public Schools is upward of eighty thousand. A careful census of the number of backward or mentally deficient children has up to this time not been made. As already said, parents are extremely sensitive at the idea of any possible defect in their children, and it would probably hamper the administration of the special classes if a thorough and scientific investigation were undertaken at once to determine the percentage of the children referred to. A short time ago an attempt was made, and the estimated number was found to be about four hundred, but for various reasons I believe we cannot accept this estimate as anything more than approximate.

It will apparently be necessary to educate the public in this country to understand that special classes will do more for backward children than the ordinary classes. When we speak of the public we must to some extent include our school boards, who are elected and represent not always the most intelligent element in the community. They are sometimes ignorant of what education really stands for, and hence often hamper rather than advance the real

interests of the schools. Without their endorsement, of course, it can hardly be expected that any radical change should be made in them. Occasionally they retard rather than help efforts that are made to improve the condition of the children. They cannot be always blamed for this conservatism, for, though sometimes born of ignorance, yet it is sometimes justly aroused by persons who wish to make investigations or experiments in the schools, with little regard to the effect these things may produce on the children. Some years ago I applied to the Boston schools to take a few casts of the palates of Boston school children for the purpose of ascertaining the shape of the normal child's palate. A cry was, however, raised in the newspapers that I was endeavouring to prove that Boston school children were idiots, and my request was refused. This only proves how inordinately sensitive an American community is to even the appearance of any interference with its own rights or those of its children, and how difficult it will be for us to organise and expand an adequate system of special classes.

Adjoining Boston is the town of Brookline, and I am a member of the school board of that town, as I think I have mentioned in a former communication. We have 3,000 pupils, and it is our opinion that we have at least 1 per cent. of backward children. We had planned to start a special class for a portion of these last autumn, but for various reasons have delayed doing so until next autumn. One of our difficulties has been to find a good teacher. On first considering the subject I assumed, judging from what I had read of special classes in Europe, that a competent teacher should receive part of her training in an institution for the feeble-minded. The ideal way seemed to be to first find a bright and successful teacher in the primary school, and then send her for a few months' residence to an institution where she could observe and practice the methods there in vogue. I was somewhat surprised to find that Dr. Fernald, superintendent for the school for feeble-minded in this state, differed from the opinion here expressed. He thought a teacher would be better who had not been to an institution for training, provided she had taught in the primary school and understood kindergarten methods, and had the necessary personal qualifications for success. He thought she would do better in the beginning, perhaps, after observing the work done in the special classes, to begin her own duties without further special knowledge. From my observation of teachers who have come from institutions with preconceived ideas based upon what has been done with feeble-minded children, I have

come to believe that the opinion of Dr. Fernald is right. First let the teacher begin and observe what the difficulties of the situation are with which she will have to deal; let her work them out with the training that she has had, and then, after she has become somewhat experienced, give her a chance to gain insight into institution methods by observation and experience, perhaps, in the classes in the institution. In this way she would be less liable to make mistakes than any other. I think we shall pursue this plan in Brookline, and I look forward confidently to success in our undertaking.

NUTRITION AND EDUCATION.

By A. B. KINGSFORD, M.R.C.S., L.R.C.P., D.P.H.

(Member of Council).

There is but one source of all the energy displayed by man, and that source is his food (or, to express it more accurately, the potential energy of chemical separation between the oxygen, on the one hand, and the assimilated, or quasi-tissue, product of digested food, on the other). Though digested food and oxygen circulate together in the blood, little or no oxidation takes place there. The food has first to be assimilated by the tissue elements or cells, to be worked up more or less into their structure, that is to say, before it undergoes the retrogressive change of oxidation with the evolution of heat and other forms of energy.

The structure of cells consists of the more fixed meshwork or spongio-plasm, and the more fluid contents or hyalo-plasm. The former is very complex, and undergoes comparatively slow processes of destruction. So it yields but little energy, and takes only a small proportion of the total food material.

The greater part of the food material serves to make good the more rapid waste of the less permanent, more floating, constituent of the tissues—the hyalo-plasm, while a certain amount is stored in the tissues along with free oxygen without actual incorporation in the living elements for the time being.

Certain experimental evidence entitles us to believe that the reception of stimuli from without is essential to the assimilatory functions of every cell. The cells in general, say skin, gland, and muscle cells, get theirs from the nervous system (which, of course, lies outside those cells themselves).

As for the cells of the nervous system, they get theirs from the outside world. On their physical aspect these stimuli appear as forms of energy; always motion in one of its many varieties, vibratory, undulatory, and so on. This motion is received, transformed, and after a while, to a large extent, emitted as motor impulses—this is the main source of that energy which enables the

nerve cell to nourish itself, to assimilate its food material from the blood.

What food then is required to supply the nervous system, and especially its higher or cortical centres, with the maximum of potential energy for their maintenance and growth, and above all for their development?

Good human milk we are agreed, is "*the* best food for infants," and its proportion of fat (nearly 3 to just over 4 per cent.), proteids, and sugar must be our guide in the preparation of substitutes. As age advances the child's dietary is modified to meet the requirements of its developing powers. With the gradual modification of the diet goes a striking alteration in the proportions of the three foodstuffs. The child requires (in grammes)

	Proteid	Fat	C.H.
Up to about the 18th Month....	28	37	75
18 Months to the 6th Year	55	40	200
6th to the 15th Year	75	43	325

(THOMPSON)

Thus while proteids are nearly trebled and carbo-hydrates more than quadrupled, the amount of fat increases only by one-sixth or about 16 per cent.

These facts suggest pretty forcibly the enormous importance of fats to the infant at the age when growth of the body and development of brain are proceeding most rapidly. There is no patent food, however useful some may be in emergencies, which in the long run proves a satisfactory substitute for milk without the addition of animal fat in some form or other. Children fed entirely on patent foods may gain weight and grow big; but the weight is the gross weight of superfluous fat, and the size is due to the same, and to the weedy overgrowth of counterfeit bone; in the words of Jenner "the promise of bone without the performance." Such children are more or less rickety and ineducable.

Examination of a number of idiot and imbecile children in Bordeaux showed that in about 8 per cent. there were very marked signs of rickets; and these were found in the cases of imbecility which were apparently, *non*-congenital. Repeated convulsions, rickety *or* epileptic, (in early life) make for imbecility. We find in rickety children generally, a marked want of control.

The proper command of the muscular system by the cortical centres is surely a great part of the foundation of all practical education. The lack of sufficient control by the higher centres is

obvious enough—on the plane of mere movement—in the convulsions of rickets. In any disease of nutrition affecting the nervous system, though all parts doubtless suffer in some degree, the highest parts, *i.e.*, those most recently evolved, suffer most; and so we have a relative excess of energy in the more instinctive centres, below the cortex, and a relative deficiency in the volitional cortex whose action is primarily, I believe, inhibitory and permissive. As long as these upper centres remain below par so long will the acquisition of control be delayed.

Rickety children generally prove very excitable, not to say passionate, when they are disturbed. Their peacefulness is merely that of intellectual torpor; for though subject to explosions of muscular movement on the least provocation, of truly spontaneous action they display strikingly little.

There is also delay in acquiring the power of co-ordination, the more positive factor of progressive action. This is seen in the lateness of walking and talking in these children, and here the direct influence of mal-nutrition on education becomes most apparent. In some cases, according to Dr. W. Stacy Colman, the delay seems *entirely* due to want of co-ordination. The muscles of speech and of the limbs are quite strong, and, when under treatment the missing cortical links get filled in, the children sometimes start walking almost suddenly, and talking in whole sentences at once. The gain of co-ordination implies a gain of control, and accordingly the attacks of convulsions become less frequent, and soon finally cease.

The gain of volitional control over the musculature is the first step towards the final supremacy of Will over Desire. Knowledge of what is harmful or advantageous is obviously important, as it is directly self-preservative: while knowledge of what is merely useless is also important, as it is indirectly self-preservative in so far as it reduces the waste of one's energies to a minimum. The economy effected by the controlling action of the hemispheres of a rabbit or a dog has been shown by experimentally removing them. Deprived thus of conscious memory and perception, the rabbit ran heedlessly past a heap of carrots, avoiding it as an obstacle, though he hungrily devoured the carrots which were put in his mouth. Moreover, the dog was found to wander about restlessly all day long, and though abundantly fed he became rapidly emaciated.

Successful attempts merely to keep still for any length of time

must cost an inexperienced child a really heroic effort, which implies a great drain of energy from the higher centres. For the feeling of effort is the mental counterpart of nerve friction, and all friction involves some loss of energy. After a while so great becomes this drain of energy through the mechanisms of control that it monopolizes consciousness to the exclusion of everything else from attention. The kindergarten method of letting off this instinctive steam is a true economy, whether regarded physiologically, psychologically, or educationally.

From this point of view the importance of a full diet is obvious; not bread and scrape, nor yet bread and jam, but brown bread and butter with oatmeal and milk. It need scarcely be said that this point of view is dead against "lessons without breakfast."

Before birth the cortex of the fœtus consists of a mass of grey matter, almost uniformly gelatinous in appearance save for the presence of a multitude of small round unbranched cells. At birth we find a number of separate sensory (spheres or) centres lying separately from one another in the surrounding grey matter. These centres have been developed out of the comparatively homogeneous grey matter by sensory impulses received mainly from muscles and joints.

Perhaps we may conceive of the process continuing thus—Contact or touch stimuli received (say) by the skin are transformed by the end organs of the nerves into nerve currents or impulses as aërial vibrations are transformed into electric currents by a telephone. The sensory nervous impulses conveyed (by sensory nerves) to the grey matter of the cortex make various paths through it to the cells. Some paths offer less resistance than others, and these get fixed and developed while the others become obliterated from want of use. The sensory cells, charged already with pent-up motion or energy derived from the *food* now become surcharged by every access of energy, or stimulus, reaching them viâ the sensory nerves. This surcharge seeks an outlet, and thus we find little processes begin to project from these sensory cells which gradually branch more and more through the grey matter *towards* the motor cells, and end in brushes of fine twigs disposed round about certain finger-shaped processes projecting from them. Each motor cell itself has a long projecting fibre called the axon, which is ultimately distributed to the surface of a muscular fibre.

The development of these mechanisms (the organisation of pathways through the system) takes place in one direction only, from sensory, or receiving, organ to terminal muscle or responding organ. As any particular pathway through the grey matter becomes more

and more used its resistance to the passage of nerve currents gradually lessens, it becomes smoothed (so to say), and then the thin thread of the thus modified grey matter acquires a fatty sheath, or, as we say, becomes myelinated.

This fatty sheath not only fixes the pathway and prevents loss of nerve current from it, by insulation, but also serves another very important purpose. It is found by experiment almost impossible to fatigue, or tire out, a fully myelinated nerve fibre.

Such wastage as goes on in the grey core of the fibre is as rapidly made good at the expense of the myelin sheath. It is probable also that the energy of the current in the grey core (or axis cylinder) is greatly re-inforced at the expense of the sheath.

So the formation of a sheath is an all-important feature of cerebral development. By experiment this formation has been proved to depend directly on the reception of sensory stimuli. Thus if, in an animal born blind, you keep one eye closed for several weeks after birth it is found that the formation of the sheath of the (optic) nerve fibres on the blind side is very distinctly retarded.

I have spoken of elemental centres being laid down in the cortical grey matter at birth—like islets of dry ground in a morass. Seemingly hereditary energies plus the sensory impulses from muscles, tendons, and joints suffice for this much of a foundation.

Deprived of the added energy of stimuli from without,these islets or centres make no further progress, and often wither away as in cases of early amputation of a limb.

For the fundamental part of any centre which represents a limb in (the cortex of) the brain subserves the representation of the tensions and movements of the muscles and joints of that limb. Without this fundamental representation the ideas of positions and movements of the limbs in space cannot be revived in memory for the starting of what we call voluntary actions. If neither these nor any of those sensory impulses which start from the skin can get through to the brain, the limb is paralysed in respect of voluntary movement, though its motor centres are still capable of executing reflex and automatic movements.

When we reflect how large a part of our knowledge is based upon our ideas of movement in relation to our environment, we can readily understand how dependent education is on the reception of stimuli from the skin, and to all parts of the limbs which stimuli doubtless directly promote the myelination of (kinaesthetic) association fibres, as light stimuli do that of optic, and secondarily of higher visual fibres.

Moreover, there can be no doubt that the observation of our movements tends likewise to actually form association fibres between visual centres and those of the muscular sense to bridge the gap between them in the grey matter.

Each elemental islet or centre in the grey matter forms the substratum of a simple unrelated sensation. Some change in the centre underlies this element of mind. But knowledge is built up of experiences, and consists in the establishment of relations between them, (in correspondence with the relations of the environment). And so in the formation of association fibres through the grey matter between the different sensory centres we can see a physiological counterpart of the advance of knowledge.

Now these association fibres are the last to be formed in the cortex of man. Their number and complexity very largely depend on the number and complexity of his experiences. As experiences accumulate they all leave their traces in the nervous system as memories, and many of them are revived in a body as ideas which rise to meet and receive every new experience, and to assimilate it to themselves. This is the process now styled apperception. It accounts for the fact that a simple sensation is practically unknown to the adult, and depends, of course, on the existence of a good system of fibres of association. But the cells, as I have said, must be kept charged with energy, derived from the food, especially fatty food, or they will not be able to bud and branch out and form association fibres, no matter how much we may stimulate them in other ways.

Rickets, as we have seen, afford a clinical illustration of the delay (due to mal-nutrition) in completing such associations. St. Vitus' dance or chorea affords an illustration of defective control and co-ordination on the higher plane of action; while hysteria is an example of defective control on the still higher plane of conduct. Now both these conditions, like rickets, are benefited by the supply of abundant food, rich in fat, with various forms of stimulation, as devised by Weir Mitchell, to promote its assimilation.

Nature's chief stimulants are sunshine and fresh air. Clinically we supplement these with light and electric baths, passive movements, and massage in various forms. In disease the benefit of the overfeeding plus stimulation is secured for the nervous system by enforcing rest of body and mind, so as to leave all its activities free for concentration on the business of repair. Much the same might be said of certain other nervous diseases: *e.g.*, neurasthenia,

melancholia, delirium tremens, and mania. Bulky food and plenty of it—in these maladies also, is our great restorative.

But even full assimilation of good food is not quite all that is required for the cure of rickets. For the truth is that even milk is defective in one particular. It has not enough iron. So, many of these patients are anæmic and require large quantities of added iron with their food. Now it seems that the assimilation of the iron administered, and its incorporation as hæmoglobin in the blood rather closely resembles the assimilation of information and its incorporation as knowledge. The quantity of iron given is large, so is that of information imparted; but the single doses must be small and frequently repeated to secure some assimilation in either case. Like food itself, both iron and information must be given in bulk. As much of the iron is lost from the body for every little that stays and becomes useful, so much of what we read fades from memory for the little that stays as knowledge. Furthermore, sometimes the administration of iron alone is inefficient, and arsenic or some other drug must be given along with it, just as some geography must be taught along with history to get that historical information incorporated as a knowledge of history. Similarly a mixed diet is advantageous. Milk and bread, given together, are better absorbed than they are when given separately.

If knowledge is built up of experience, education is the anticipation and systematisation of experience. It economises without stinting by artifically providing a great number of experiences specially selected as suitable, for assimilation in themselves, and for promoting the growth of more mechanisms of assimilation or apperception.

How are we to know what experiences are suitable?

Largely by watching the child at play. In the playground the teacher, himself invisible, sees his children as bundles of enthusiasms untempered by (his) criticisms. There is his chance for studying their real personal equation. Do they seem lacking in enthusiasm or go? Then probably the food is deficient in quantity, possibly also in quality; or, if they are full of "go," too little controlled, then, perhaps, the food may be lacking in quality at any rate; especially in fatty constituents; if not actually in quantity also.

So fundamental is the rôle of food in the curriculum that it might be compared with the mortar which holds the whole edifice together.

HEALTHY DENTITION: ITS IMPORTANCE IN CHILD LIFE.

By R. DENISON PEDLEY, F.R.C.S.Edin., L.D.S.Eng.

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(Member).

The simplest definition of *a healthy dentition* is: The growth and development of teeth and jaws under normal conditions in a healthy child.

In early life, teeth are developed from the soft tissues of the jaws. They are shaped in soft tissue, and become gradually hard by the deposition of lime-salts secreted from special cells. This is described as *calcification*. At birth, the crowns of the temporary teeth are partly formed: there are ten in each jaw. Each tooth is separated from its fellow by a layer of bone, which ultimately envelopes it. Each jaw contains, in addition, the germs of sixteen permanent teeth. Or, putting it in another way, the jaws contain at birth fifty-two teeth. The crowns of twenty—the temporary set—are partly formed, only the germs of thirty-two—the permanent set—are present

About the seventh month, the incisor or cutting teeth appear through the gum, and—with intervals of rest between the eruption of each pair—by the end of the second year the whole of the twenty teeth can be seen in position. Under healthy conditions, this eruption or the passing of the teeth through their bony crypts and through the gum should be attended with very little disturbance beyond that of fretfulness on the part of the child, with a slight swelling of the gum and an increased flow of saliva.

The fangs of the teeth are not complete until about the fourth year; and, soon after they are fully grown, a soft tissue may be found at the termination of each fang, consisting principally of large bone cells called osteoclasts, which gradually remove the whole of the fangs and the bony tissue built up around them, leaving the

crowns of the teeth loose, and easily removed from the gum. Thus a way is made for the oncoming teeth of the permanent set.

This truly wonderful action is taking place simultaneously with the growth of the jaws and the development of the permanent teeth, which gradually come to the surface as the temporary teeth disappear.

The first permanent teeth are the six-year molars, which pass through the gum *behind* the temporary molars, and are often mistaken for them.

At twelve years of age all the temporary teeth should have disappeared, and their places taken by their permanent successors, with the addition of eight molars, two on each side in the upper and lower jaws—twenty-eight in all. The fangs of these teeth are not complete until the fifteenth year. The four wisdom teeth appear at irregular intervals between seventeen and twenty-five years.

In order that this evolutionary process may be carried out with benefit to the child, there are two essentials: 1. Healthy parents; 2. Wholesome food. The first we must dismiss with the remark that over them we have little or no control.

What is wholesome food? Fortunately for us nature answers this question on the threshold of life by supplying the mother with the means for supporting her offspring during the first six to nine months.

During that time an observant mother will have noted the facts that her babe shows an uncontrollable desire to exercise its muscles of mastication, as well as its muscles of locomotion. As the teeth make their appearance, a substitute for the natural supply of nourishment has to be found, and this is the first pitfall of error in diet a mother is likely to encounter. She has learned by experience that her child thrives on milk, and she is told that milk must be its staple diet. As starchy foods can now be digested in small quantities, crusts and rusks soaked in milk, with a little bread and butter, are introduced. Later a little meat, fruit and various soups.

That food which is most easily digested is the first consideration, and the motherly solicitude for the child's welfare prompts her to administer it in the softest condition.

To satisfy the cravings of mastication between meals, a baby's comforter is given in the shape of a rubber teat, or ring of some hard material, upon which a vigorous child will mostly exercise its power of *suction*. This may be described as the orthodox method of feeding an infant; and, if digestion commenced in the stomach, it

would be of great advantage. While the nutrient fluids which are absorbed by the alimentary canal are helping to nourish the body, and provide material for the building up of bone and muscle, the teeth and jaws require exercise to the full. The system usually adopted is somewhat equivalent to confining the exercise of a child's limbs to a roomy crib, instead of allowing it to crawl about the room.

The remedy is as simple as it will be obvious. The bones which are removed from the table should be supplied to the child. However bare at first, they will give nourishment as well as exercise. In addition, and later on, when the molars are through, hard crusts, hard biscuits and hard meat, which require much chewing, will be eaten with avidity.

The proper use of the muscles of mastication, with the pressure exerted on the teeth by the grinding of such food, increases the blood supply to both jaws and teeth, thus favouring their growth, and the development of the permanent teeth, which lie buried in the jaws.

It is necessary to remember that digestion commences with the entrance of food to the mouth by the action of saliva in converting starch into sugar. That this may be accomplished, the food must be thoroughly masticated and incorporated with the saliva until it becomes a pulpy mass before being passed on to the stomach for further digestion.

When this ideal method of favouring healthy dentition is carried out, much of the distress caused during the eruption of the teeth disappears, owing to the constant pressure exerted upon the gums. The friction of the food, with the copious flow of saliva, constantly cleanses the teeth and keeps them free from decay. If all this be true, the answer to our question "What is wholesome food?" is found by supplementing food which is nutritious by that which satisfies the mechanical requirements of the jaws and teeth.

Are the facts generally known? Experience teaches us that there is a lamentable ignorance among all classes of the community; and to this we may attribute much of the suffering which arises from *defective dentition.*

What is defective dentition? If you will—in thought—accompany me to a children's hospital, and step into the dental department, it may be possible to find an answer to our question. The first patient is a little child led in by his mother, who states that he has been crying *often* with the toothache. She has a child in her arms who is sucking vigorously at a teat.

On examination, we find that this patient has three carious molars, one of which is the source of trouble. "How old is this child?" "Two years." "What do you feed him on?" "He has the same food as we have." "What is that?" "Bread and butter and tea for breakfast: a little fish and meat (sometimes) at dinner, tea and bread and butter for tea." So we try to point out that the boy needs at least one pint of milk each day—that oatmeal porridge and milk is a wholesome meal for breakfast—that for twopence she may obtain bones from the butcher, and with a pennyworth of vegetables, could make some good soup, and then the bones might be given to the child to exercise his jaws upon. This patient is two years of age: not until the end of the second year will he have completed cutting his teeth. He still wants four molars, and yet at this early age destruction has commenced. The husband is not poverty stricken for he earns 34/- a week.

The next patient is a small dark-haired child, whose mother informs us has kept her awake all night with the toothache. The child is three years of age and has four decayed molars. "Do you teach her to clean her teeth?" "No!" On further enquiry we find that biscuits are given the child when she goes to bed. She has just completed her first dentition: all the twenty teeth are present, but the fangs of these teeth are not fully grown. Yet at three years two teeth are hopelessly decayed. In addition to the necessary treatment, we order a tooth-brush and a simple powder, and explain that the teeth *must* be brushed after the last meal at night. No biscuits must be given at bed-time, as this is material for decay, and the mischief goes on in the night even more than in the day.

From these and other cases we learn that the destruction of the teeth is fostered by *improper feeding*, *want of cleanliness*, and a *lack of proper supervision*. The improper feeding is due to *the curse of ignorance*, not poverty alone.

Now I will ask you to accompany me to the wards. Here is a boy lying in his cot. He is suffering from hip-joint disease, and that weight which is hanging over the end of the cot is to prevent the limb from shortening. Let us examine his mouth. He is seven years and nine months old, and we find that he has four permanent molars decayed. The disease he is here for is a local manifestation of tuberculosis or consumption. We will pass along to another ward. This is a girl aged eleven years. She is still very thin and white. She has suffered much from constant sickness. Her breath was most offensive. Seven carious teeth, or the remains of them,

have been removed. Her mouth has been well washed with Condy's fluid. On good and wholesome diet her weight has increased from two stone eleven pounds to four stone eight pounds in eight weeks.

These two are typical cases; and I would remind you that downstairs the patients were driven to seek relief from pain. Here there is no question of it. Pain, therefore, is only *one* symptom of defective dentition, and by no means the most important. I have examined in the wards of the Evelina Hospital 500 such children, not one of whom complained of pain; 410 of these children had on an average nearly five carious teeth each.

I have asked your attention to these cases to point out one or two facts. When a child cannot eat properly, more work is thrown upon the stomach than it is fitted to perform. When carious teeth are present, the products of decomposition are poisoning the patients. However good the air they breathe, however wholesome the food given, they are tainted by putrid material. A child's vitality is thus lowered, and the door is opened for diseases which are only too ready to walk in and take possession.

What is the remedy? As education is now a national care, every child should be taught a knowledge of its own body, and the most suitable foods upon which it can thrive. Every girl should be taught how to select and cook suitable food for those at home. Every young mother—whatever her station and position in life—should be taught that as nature clearly reveals to her the food best fitted for her offspring during the first few months of life, such knowledge cannot be disregarded with impunity. To seek other foods, or to avoid the cares which such feeding necessarily entails, is to handicap the child from its starting point in the battle of life. Children, when fed naturally, are healthier, and therefore happier. Their dentition is better, and they are more fitted to withstand, if not to avoid, the various diseases so prevalent in later years.

We hear much of the decrease in population in Britain and among the British people beyond the seas, and, as time goes on, we are likely to hear more. That, however, is of small importance compared with the appalling waste of child life in our midst. To discuss the one is to ask what might have been? To consider the other is to ask what is? This waste of child life is largely due to unnatural feeding, and where it does not destroy life it often maims. The products are weaklings. Living sorrows, nurtured on ignorance. Such are to be found among all classes of the community.

A knowledge of the above-mentioned facts prompted members of

the British Dental Association to find out if possible by systematic enquiry how far healthy children's teeth were defective. I believe it was in the years 1885 and 1886 that this enquiry was initiated.

The result of the reports was briefly this. 3800 children were examined and results noted on charts made for the purpose. Each tooth in every child's mouth was recorded, the ages of the children ranging from 3 to 16 years of age. 828 only had sound dentitions, nearly 3000 children had 10,695 carious teeth, slightly more than 3 each. The schools were situated within 20 miles of London in extensive grounds, where the inmates have all the advantages of good air, good food, and healthy exercise.

458 girls from the parochial schools of the Metropolis alone entered domestic service in one year, and nine-tenths of them had never had any supervision or known the use of a tooth brush. If it should be suggested that these were the children of the poor, and that higher in the scale of life *defective nutrition* is not so prevalent, Mr. Sidney Spokes has placed on record the fact that, out of 427 boys in one of our largest public schools, all over thirteen years of age, only 7 were found free from decay or loss of teeth. At the close of the enquiry 10,000 children had been examined all over the kingdom in schools of various kinds, and it was found that 83 per cent. had defective teeth. *What has been the result?* No less than 40 public appointments have been made by enlightened bodies of guardians, and many thousands of children are systematically inspected: carious teeth are saved, or removed if useless.

In most of the public schools dental surgeons have been appointed: but of equal importance is the fact that public attention is being called to this defect in the body; and a remedy is now being sought as to the CAUSE.

EDUCATION OF DEAF MUTES.

Notes of a Visit to the Royal Asylum for the Deaf and Dumb, Margate.

By W. J. DURRIE MULFORD.

(Honorary Secretary.)

On Saturday, June 18th, 1904, the members of the Childhood Society visited the Royal Asylum for the Deaf and Dumb, at Margate. This is the oldest and largest school for this class of children in the British Empire. It was founded in Bermondsey in 1792; in 1807 it was removed to a more commodious site in the Old Kent Road; and its connection was kept up with that locality until the end of 1902, when the building which succeeded the original one was sold to the School Board for London. The whole establishment is now concentrated at Margate, and, to bring the accommodation into line with the latest requirements, extensive additions have been made to the building, and will shortly be brought into use.

The Members were received by several of the Committee of the Asylum, including the Chairman (Mr. Buttanshaw), the Secretary (Mr. Madden), and the Head Master (Dr. Elliott). The first item in the programme arranged for the visitors was a gymnastic display in the Gymnasium, given by a selected class of boys and girls, which was thought to be very well done, and quite equal to what children with all their senses could have presented. This was followed by luncheon, after which the chairman of Council, Mr. E. W. Brabrook, C.B., thanked the Committee and the officials of the Asylum for their reception of the members of the Society and for the hospitality extended to them; this was acknowledged by Mr. Buttanshaw, who expressed the delight the Committee of the Asylum felt in welcoming so useful a body of ladies and geutlemen to an inspection of the work of the institution. The Head Master then explained the arrangements he had made to present its leading features to their notice. The whole of the school was in full work; but inasmuch as the class-rooms were not capable of receiving with comfort a large number of persons in addition to the pupils in them, he had placed

four typical classes side by side in the large school-room. These were a class of slow and mentally defective children, a beginners' class, an intermediate class, and the highest class. He explained that they followed both the oral system and the silent system in their instruction. Every child was tried by the former, and the great majority, 245 out of 290 children, were taught exclusively orally in school. A very large proportion of these were able to, and did acquire intelligible speech; and even in those cases where a lower standard of success was reached, very much or all of their utterance was understood by their relations and intimate friends. No experienced teacher of the deaf professes to be able to impart speech to all deaf children in as perfect a form as it is gained by the ear. But in many cases, a very high degree of success in this direction has been gained by pupils as the result of their training in the Asylum.

The members were then conducted into the schoolroom, where specimens of all the various classes and divisions into which deaf-mutes may be grouped were assembled. The children are received between the ages of 7 and 10 years, and continue at school until they are 16. Although children of absolute mental imbecility are rejected, some who are in the Asylum are of very poor ability mentally, lacking memory and power of thinking, and seemingly never likely to advance beyond a state of intellectual babyhood. It is exceedingly difficult—almost impossible—to determine, without actual trial continued for some months, whether a case is one of slow development or of absolute intellectual inability to learn. Those children are in very capable hands in the Asylum, and are taught with the most considerate kindness and patience by Miss Hare, and make as much progress as their unfortunate state renders possible. But their place in a school with normal deaf children is to be regretted. They would be far better in one where their peculiar position could be particularly provided for.

A class of bright little children who entered the school the latter end of January was presented to notice. Their time has been mainly taken up in learning the elementary sounds of speech, and to recognise them by their visible representation when uttered. They were able to say a number of words, in exemplification of the sounds they had learnt.

A class which had been under instruction about 2½ years gave examples of the speech they had acquired, and also showed specimens, as did the other two classes, of their handwork in kindergarten

exercises and basket work, which was thought to be very nicely executed.

The boys' first class was then examined by their teacher on the current events of the day, and showed that they possessed a full knowledge of these, and were able to express it *vivâ voce.* They also did some dictation from the teacher's lips.

After this the whole of the visitors and the school adjourned to the lawn in front of the building. Here the may-pole dance of the girls and boys, as given on May day last, was shown. The little May Queen, when chosen by the votes of the whole school, was dressed in her royal robes, with her small attendants, and took their places in front of a may pole. The girls then went through their silent dance, keeping excellent time, and executing some very pretty movements. Some boys also gave as part of the performance a series of fancy steps. After this the children and visitors mingled, and the former when addressed exercised their powers of speech.

The building which stands on an open site was built in 1875, and the extensions now made are the third which have been added to the original building, It has now ample accommodation for 320 children, and is managed and supported without any connection with state-aid, being in this respect unique among the institutions for the deaf in England.

LIST OF MEMBERS,
ASSOCIATES, AND CORRESPONDING MEMBERS,
To December, 1904.

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Prof. T. M. ROTCH. (Boston.)
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MINISTER OF EDUCATION, Rome.

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